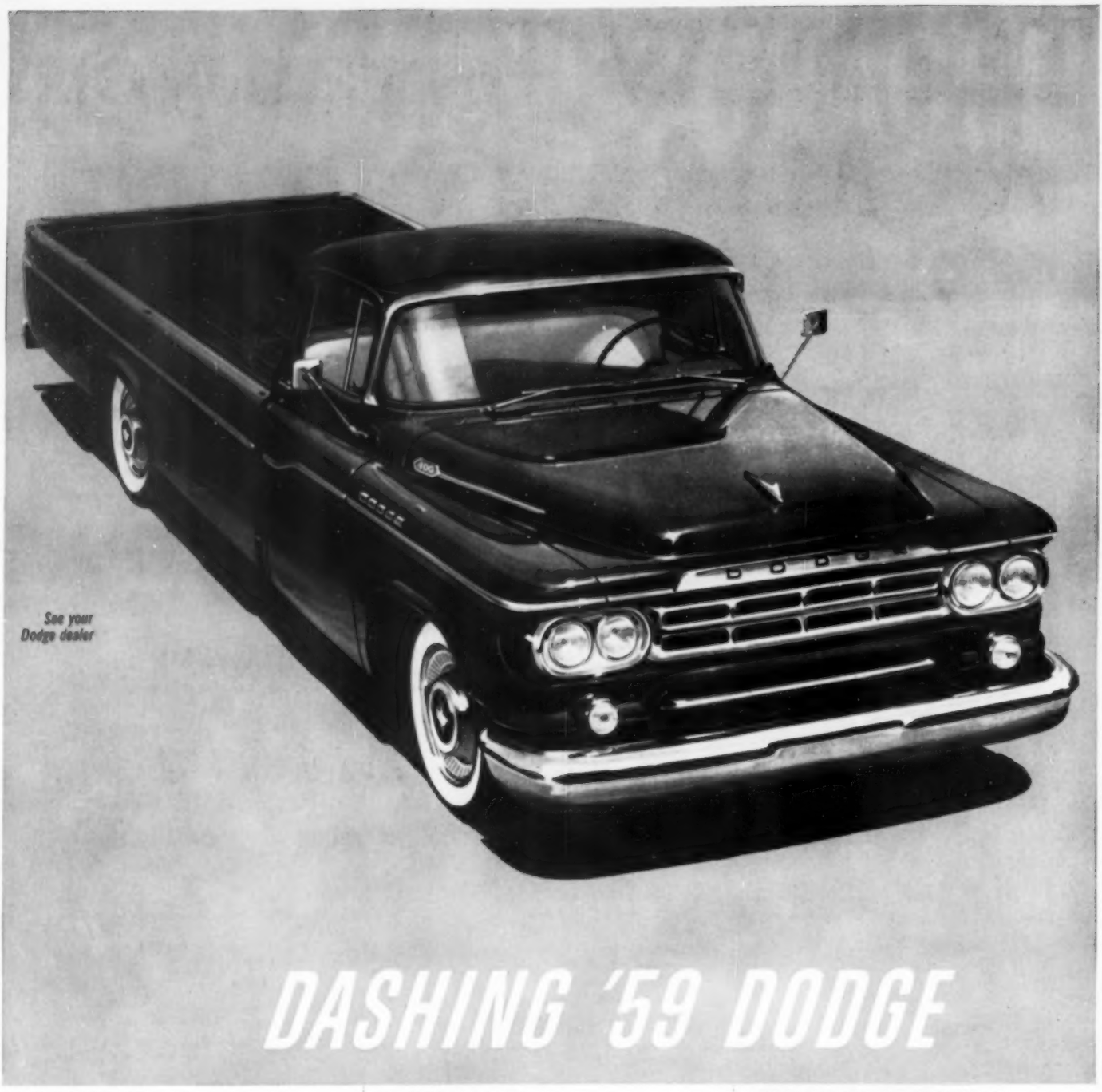
HOARD'S DAIRYMAN

MAY 25, 1959

THE NATIONAL DAIRY FARM MAGAZINE



See your Dodge dealer

DASHING '59 DODGE

MOST STYLE

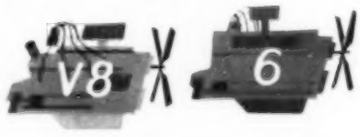
And this Dodge SWEPTLINE'S bright new beauty has its practical side. That smart, smooth sweep from headlight to taillight makes possible more load space—the most in the low-price field!

MOST VALUE

The new Dodge SWEPTLINE is the truck that gives you the most of everything: Easy ride . . . extra load space . . . flashing power. Test-drive it soon! Test Dodge prices, too—they're often the lowest prices!

MOST PERFORMANCE

Up to 205 hp. (check that against other pick-ups in the low-price field) puts the zip in this eager V-8. Or choose the famous, dependable Dodge Six. Of course, both give full power on regular gas.



TODAY IT'S REAL SMART TO CHOOSE

It's the truck with the most DODGE TRUCKS

The NEW Terramycin® for Mastitis can help you to get back to milking for money faster than any other mastitis treatment made—*BAR NONE!*

BRAND OF OXYTETRACYCLINE

HERE'S WHY:

The NEW Terramycin is the ONLY preparation that meets all these requirements for an ideal treatment:

1. **BROAD COVERAGE** The drug must be able to control mastitis germs—*10 or more kinds* (not just 3 or 4). If it can not, it must be mixed with other narrow-coverage drugs that can fill in the gaps in protection.

Terramycin gives you broadest bacterial coverage. In fact, year after year, no other antibiotic . . . no other drug of any kind, BAR NONE . . . hits more mastitis-causing organisms than Terramycin.

2. **COMPLETE DIFFUSION** Before a drug can control mastitis germs, it must spread to the site of the infection . . . including the deep-seated hidden pockets of chronic mastitis.

It is absolutely impossible for any other mastitis treatment—BAR NONE—to diffuse as far, as fast within the udder as the NEW Terramycin.

3. **PERFECT SOLUBILITY** Even with good diffusion, if the product does not have good solubility, you could not get the job done. Why? Only with perfect solubility can the drug get the ideal, direct, complete contact with bacteria . . . and only perfect solubility prevents settling out of the drug in the tube or the udder.

The NEW Terramycin for Mastitis is the only perfectly soluble mastitis treatment on the market today—BAR NONE.

4. **HIGH ANTIBIOTIC ACTIVITY** To treat mastitis fastest . . . to overwhelm mastitis organisms with highest treatment levels of drug activity . . . the treatment must deliver full antibiotic activity immediately after use.

The NEW Terramycin delivers the highest level of antibiotic . . . fastest . . . of any udder treatment—BAR NONE. And it maintains high, therapeutic levels for 36 to 40 hours.

5. **MILK OUT COMPLETELY** An ideal treatment must disperse . . . cover the quarter . . . do its job . . . and milk out clean and fast to let you get back to milking for money faster.

The NEW Terramycin milks out fastest—BAR NONE . . . is completely milked out within 72 hours. Other treatments have been detected in milk 10 days to 3 weeks after treatment.

6. **STABLE** The product must remain potent until used . . . must not freeze or become stiff and unworkable in winter.

NEW Terramycin remains stable, fluid, workable, unfrozen even at zero and below.

Add up these benefits of the NEW Terramycin for Mastitis:

• Broadest coverage • Fastest, deepest diffusion • Perfect solubility • Highest antibiotic levels—fastest • High, therapeutic levels for 36 to 40 hours • Completely milked out in 72 hours • Stable, non-freezing.

They prove why the NEW Terramycin for Mastitis is the best way to get back to milking for money—fastest—BAR NONE!

You can tell the NEW Terramycin by the red band on the box.
At your dealer's now. Get your supply soon.

You are *sure* of Greater Profits with

FOX

FORAGE HANDLING EQUIPMENT

FOX
BUILD-IT-YOURSELF KIT
Build your own box —we furnish plans. Buy Bunk Feeder mechanism—includes one beater.
ONLY $610.00 F.O.B. APPLETON WISC.

New Forage Box and Bunk Feeder

Here's an all-purpose box that is tough and durable for rugged field work, ideal for bunk feeding and well-adapted to the hauling and handling of small grains. Up to 518 cubic foot capacity means you can haul big pay-loads. You can unload at the rate of six tons of forage in only four minutes. You haul more. You unload faster. The tractor P.T.O. does all the hard work. Enclosed transmission, self-aligning bearings and variable speed control are just a few of the Fox plus features you receive. You can purchase the unit at your local Fox dealer complete or as a do-it-yourself kit with plans and diagrams.

New Short Hopper Blower

The perfect companion to the Fox bunk feeder when making silage. Conveyor feeds directly into the short hopper with a minimum of spillage and waste. The same combination will also speed up the handling of grain. Rotating blower band delivers at any angle. Simple, sturdy design insures many years of service.

New All-Crop Blower

This new unit with the wide 10-foot hopper will deliver 67 tons of corn silage per hour, more than a ton per minute. Performance with other forage crops is equally remarkable. Perfect balance and streamlined design make quick work of storing, transporting and setting-up. Same blower unit as Short Hopper Blower.

Ask your FOX *dealer for a demonstration*

FOX RIVER TRACTOR COMPANY
1020 N. Rankin Street F-28 Appleton, Wisconsin
The Pioneer of Modern Forage Harvesting

HOARD'S DAIRYMAN

The National Dairy Farm Magazine

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W. D. Hoard & Sons Co.
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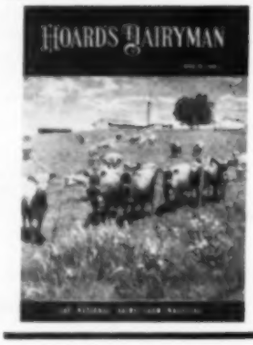

COVER PICTURE

The inquisitive bovines on our cover are part of the registered Jersey herd owned by Don Dean, former director of The American Jersey Cattle Club, Champaign, Ill., and his son, Joe, a recent graduate of the University of Illinois.

Due to a new highway being built through their home farm, last summer the herd was moved to a new farm where a loose-housing setup was constructed; it can be seen in the background. On H.I.R. and D.H.I.A., the 50-cow milking herd has a 7-year average of 8,000 pounds milk, 419 pounds fat.

This is a Hoard's Dairyman staff photo.

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Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.

Washington Dairygrams

FARM TEST OF STRENGTH IN CONGRESS REVEALED BY EFFORT TO OVERRIDE PRESIDENTIAL VETO OF R.E.A. BILL. PROPOSAL WOULD HAVE MADE R.E.A. AN INDEPENDENT AGENCY WITHIN DEPARTMENT OF AGRICULTURE. SENATE SUCCESSFULLY OVERRODE THE VETO 64 TO 29 BUT HOUSE VOTED 280 TO 146 TO OVERRIDE, 4 VOTES SHORT OF NECESSARY TWO-THIRDS REQUIRED.

VETO VOTE HAS SIGNIFICANCE IN THAT IT REVEALS PROSPECTS FOR OVERRIDING VETO OF FARM PROGRAM LEGISLATION. HOUSE FAILURE, BY ONLY 4 VOTES, SHOWED SURPRISING FARM STRENGTH. ON TRULY IMPORTANT ISSUE, FARM STATES CONGRESSMEN EXPECT TO PICK UP REQUIRED VOTES FOR OVERRIDING, PROBABLY LATE IN SESSION OF 1960...AN ELECTION YEAR.

SENATE APPROVES TWO DAIRY BILLS. FIRST INCREASES APPROPRIATION FROM $75 MILLION TO $80 MILLION ON SPECIAL MILK PROGRAM FOR CHILDREN FOR NEXT TWO YEARS. SECOND BILL SPELLS OUT RIGHT OF DAIRY COOPERATIVES TO BARGAIN ON MILK PRICES WITH DISTRIBUTORS, EITHER SINGLY OR IN GROUPS.

MILK AND RADIOACTIVE FALLOUT WERE ISSUES IN HOUSE HEARING ON APPROPRIATIONS FOR PUBLIC HEALTH SERVICE. REPRESENTATIVE LAIRD (WIS.) COMPLAINED ABOUT SCARE HEADLINES. GOVERNMENT AGREED NEWS ITEMS UNFORTUNATE IN INTERPRETATION BUT REPORTS HAD TO BE MADE PUBLIC.

NEW DAIRY PRICE SUPPORT BILLS BEING INTRODUCED IN HOUSE AND SENATE. FOLLOW LINES OF BILL INTRODUCED LAST YEAR BY REPRESENTATIVE JOHNSON (WIS.). FURTHER REVISIONS EXPECTED. LITTLE PROSPECT FOR APPROVAL UNLESS PART OF OMNIBUS FARM BILL.

* * *

In YOUR next issue!

TO BUY OR TO RENT? . . . Which is more profitable for you? How to size up the farms you can buy and what your profit prospects will be.

QUESTIONS ON HAYMAKING . . . A highly informative feature answering your practical questions on drying baled hay, use of conveying equipment, and the prospects for early use of pelleting or waferizing machines.

REDUCE TRACTOR POWER COSTS . . . by following the practical tips provided in this article by an experienced agricultural engineer. This is a real money-saving feature.

THOSE CANADIAN THISTLES . . . can be stubborn, but tests on thousands of acres reveal the best cultural and chemical control programs.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

I enclose $_____ Please send me Hoard's Dairyman for _____ years.

Name_____ R. F. D._____

P. O._____ State_____

SPECIALS

3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)

Most sulfas have gaps in their treatment range

SULMET checks them all!

Wider range for surer results

SULMET is more dependable because it is effective against more organisms ...fights more diseases!

SULMET® fights more diseases, and does it better, than any other sulfa or combination of sulfas.

This has been proved in thousands of clinical trials under actual farm conditions.

The bacteria usually responsible for scours, shipping fever, pneumonia, mastitis, lumpy jaw, calf diphtheria, septicemias, localized infections and foot rot . . . all are susceptible to SULMET.

Mixed infections, too . . . as in many cases of scours and shipping fever.

That's because SULMET is bacteriostatic against streptococci, staphylococci, Pasteurella sp., *E. coli*, *A. necrophorous* and many other organisms.

And in tests, SULMET established higher blood levels than other sulfa drugs. This means better action, faster action against disease. SULMET goes to work fast. The full strength of the dose gets right into the system for the most effective attack against disease organisms.

In addition, SULMET is not rapidly excreted — stays in the system for longer, stronger action to do a thorough job.

Another important advantage of SULMET is the fact that you can treat individually or mass-treat with equal ease and success. Once-a-day dosage is effective.

This all-important combination of essential features is found in no other single sulfa.

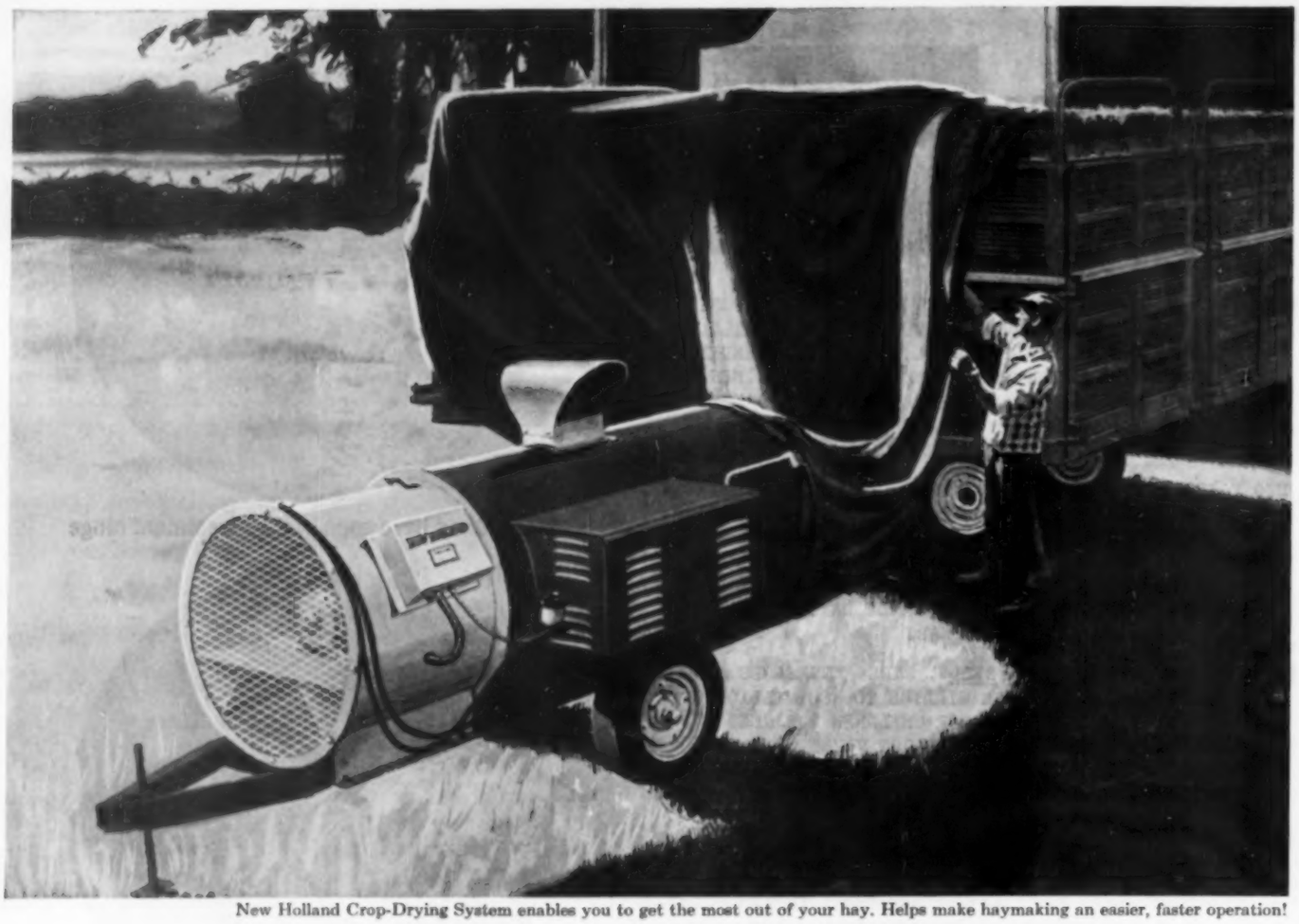
Get SULMET Drinking Water Solution, OBLETS® or Injectable from your veterinarian, druggist or feed dealer. American Cyanamid Company, Agricultural Division, New York 20, N. Y.

®SULMET is American Cyanamid Company's trademark for sulfamethazine.

SULMET gives you 3 exclusive advantages

1. Fast, effective blood levels
✓2. Wider bacterial range
3. Longer, stronger action

CYANAMID
SULMET
FOR DAIRY CATTLE



New Holland Crop-Drying System enables you to get the most out of your hay. Helps make haymaking an easier, faster operation!

Save man-power and protein-rich nutrients with a New Holland Crop-Drying System...

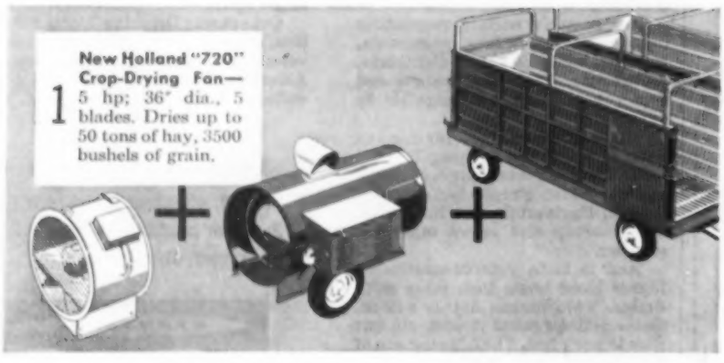
Do you leave it to nature to cure your hay before it's baled? Do tender leaves shatter, rain and sun leach and bleach before you can do your baling?

Your best answer: scientific crop drying. Done the New Holland way, it gives you as much as 25% more feed value from your crops. Hay yield increases at least 10%.

You make hay when your crop is right, and on your own schedule—weather is less of a problem! If you do your drying on your wagons, you can do your entire haying operation with minimum manpower, get highest quality.

For more information on how New Holland Crop-Drying can streamline your haymaking system, see your New Holland dealer or write: New Holland Machine Company Division of Sperry Rand Corporation, New Holland, Pa.

NEW HOLLAND NH *"First in Grassland Farming"*



1 **New Holland "720" Crop-Drying Fan**— 5 hp; 36" dia., 5 blades. Dries up to 50 tons of hay, 3500 bushels of grain.

INVESTIGATE YOUR NEW HOLLAND DEALER'S EASY-TERMS PURCHASE PLAN

2 **New Holland "701" Heat Unit** increases capacity at modest cost.

3 **Crop-Drying Wagons** save work, dry efficiently. Slatted or perforated floor for hay or grain drying.

Complete "706" Crop-Drying System dries up to 10 tons of hay overnight in 4 wagons. Can be set up in the field or in a drying shed.

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Enjoyed our vacation

Perhaps some of you remember my letter (March 10, 1958) in which I stated I wanted to take my family to Wisconsin and stay one week and do some dairyman's chores so he and his family could be gone a week.

Several have asked me why we would want to take a vacation like this. While we were not necessarily trying to compare New England and Wisconsin, we felt that if we could figure ways of doing things as a "family" it would be one step in the right direction.

We received several very interesting invitations. We went to the farm of Fred Shepherd, Dousman, Wis., and for one week, we carried on while the Shepherds were away. It gave us a fine vacation together, and at the same time was very interesting and educational.

We have never done anything together that gave us so much to look back on — seeing Niagara Falls, part of Ontario, Detroit, a ride across Lake Michigan, the hospitable people we met in Wisconsin and on the trip, the museums on Lake Shore Drive in Chicago, and the Amish people in Indiana. We cannot say which was the best part of the vacation.

We found the people we met in Wisconsin very wholesome, energetic, and friendly. The neighbors were very congenial and made our visit a great pleasure.

REGINALD RICHARDSON
Massachusetts

Poultry bankruptcy

In support of your editorial, "The Poultry Parallel," I enclose a clipping from the March 25 Portland Oregonian. Note that the Vancouver, Wash., poultryman described herein raised 50,000 chickens last year and filed a petition for bankruptcy in March.

Bigness and a surplus of abundance, whether in poultry or milk, is not the answer for which we are looking.

Oregon — DAVID KNOWLES

More on federal orders

Carl W. Proctor's letter, "Criticizes milk orders," is exactly to the point but the small dairyman has no way of showing the senators, congressmen, and Secretary Benson what these milk orders are doing to the dairy industry. To clarify this I would like to tell what has happened, and is happening, in the North Central Iowa Milk Order No. 105. Here are some of the facts:

1. Referendum was held August 16, 1957. On August 12, 1957 an excerpt from Federal Register stated, "It is estimated that 1,035 producers deliver milk to approximately 30 handlers . . . in the area." On August 16, 1957 the vote counted showed 827 delivering milk to 23 handlers with 199 disqualified. I thought this quite a change in four days.

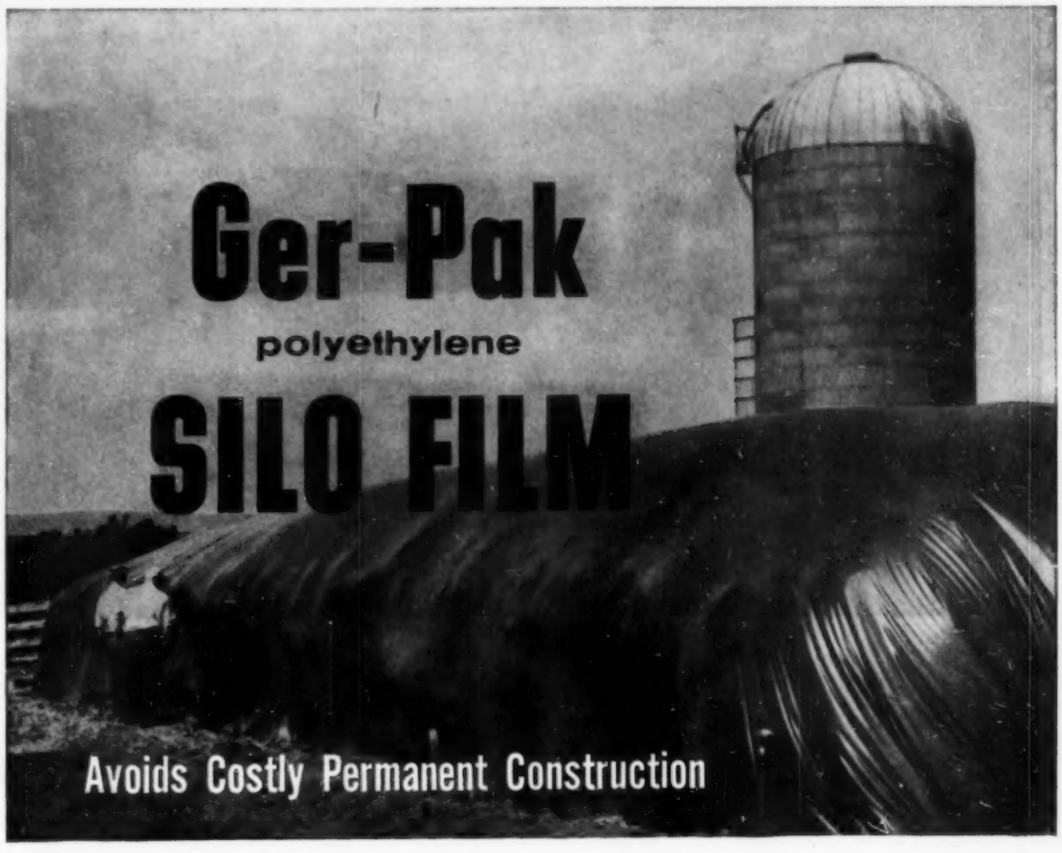
2. The vote, as recorded by Department of Agriculture, showed 623 favoring, 204 voting "no," 4 spoiled by voting "yes" on one question and "no" on the other question, and 199 disqualified as ineligible voters. Department of Agriculture announced vote as 75.4 per cent (at least 75 per cent needed), using just 623 favoring and 204 voting "no." They disregarded the 4 voting producers who voted according to their own conscience ("yes" on one question and "no" on the other question) and not by orders of the Department of Agriculture. If total voting producers were counted as 831 instead of 827 (as counted by Department of Agriculture), the vote would have been 74.9 per cent favoring.

3. For this reason, as well as numerous others, three handlers have not complied with this order in any way for the entire time Milk Order No. 105 has been in force. Over a year ago these handlers filed with Secretary of Agriculture a "petition by handler for modification of order or exemption." This is according to Agricultural Marketing Agreement Act of 1937. To date, they have been given **no chance for a hearing.** I would like to point out these handlers are not defying the U.S. government but are just asking for democratic action to correct an injustice they feel exists.

During this year a suit of injunction was filed by U.S. government in federal district court at Mason City, Ia., trying to force the three handlers to comply with Federal Milk Market Order No. 105. Main plea given by U.S. attorney was that, if this condition was allowed to continue, it would upset the whole nationwide milk orders. (He chose not to argue the case of Milk Market Order No. 105 on its own merits.) To this day, the federal judge has not found reason to rule against the three handlers.

4. My brother and I, as producers under Federal Milk Market Order 105, are required to pay 5 cents for market services ("verify or establish weights, samples, and tests

(Continued on page 542)



Why spend on the average of $3,150 and up on the *initial investment* for a permanent silo and then add the *long range* costs of increased assessments to your general overhead? Rely on silos made with heavy-duty, Sunlight-resistant Black GER-PAK Polyethylene Film to supplement your present permanent facilities.

And there's much *more* to be gained by using GER-PAK Silo Film:

- Save an average of $2 to $2.50 per ton on losses resulting from unprotected silage.
- Store extra silage when present facilities are completely filled.
- Take care of temporary increases in size of herd.
- Place silage near livestock for added convenience.
- Provide storage for pasture clippings.
- Have flexibility in covering silage volume ranging from 10 tons to 100 tons or more because of wide range of sizes in GER-PAK Film.
- Meet emergencies such as severe drought by putting up immature corn silage and save the crop.

The Short Way to Say Superior Polyethylene Film

GER-PAK®

Virgin Polyethylene Film

Gering Products, Inc., Kenilworth, N. J.

It will pay you to learn more of the rapidly growing use of GER-PAK Film for agricultural service including *mulching* to eliminate weeding and to bring crops in earlier for better prices; *plastic greenhouses; poultry house plastic glazing; soil fumigation covers; livestock shelters;* and a variety of other *agricultural applications.*

COST-CUTTING GER-PAK FILM FOR SILOS comes in widths up to 40 feet by 100 feet long, in 4 mil and 6 mil thickness. Silo caps for tower silos are available in 6 standard diameters from 12-foot through 24-foot, in both 4 mil and 6 mil. All are sunlight- and weather-resistant, lightweight yet tough, inert to soil and chemicals.

OTHER USES FOR GER-PAK POLYETHYLENE FILM

Mulching | Greenhouses | Fumigation Blankets | Equipment Covers

FREE GER-PAK Agri-News Bulletin Service contains latest authoritative data on agricultural uses of GER-PAK Film. Write today to Gering Agricultural Service, Dept. HD-525.

MORE PROOF... IT PAYS TO FEED PURINA

PURINA RESEARCH PROVES...

feeding cows on

It's pasture time again, and happy cows are heading for the great, green outdoors!

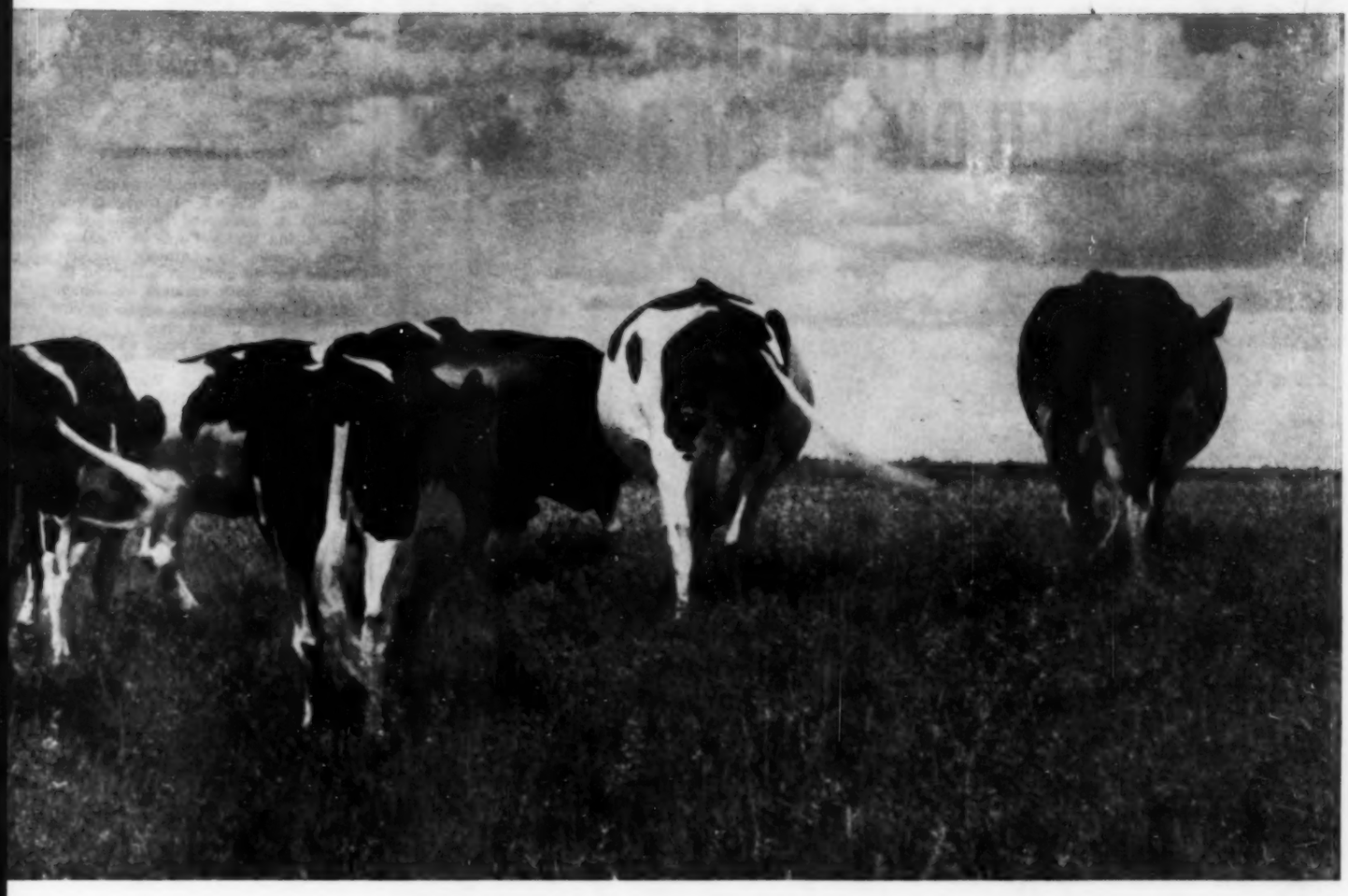
Pasture time's a happy time for dairymen, too, for grass is fine low-cost cow feed.

Still, grass alone is not enough to keep cows in condition and producing milk at the same time. Purina has performed a carefully designed experiment which PROVES that FEEDING COWS ON PASTURE PAYS!

Purina split cows into two groups, matching them as closely as possible by age, size, producing ability, stage of lactation, etc. Both groups got the same handling until they went out on pasture in April. Then one group was denied the daily portion of Purina milking ration they'd been getting while the other group continued to get Purina at a rate of one lb. grain to three lbs. milk.

A difference was noted immediately. The grass-only group fell behind. But, the big difference came the next fall.

When the cows went into the barn, the grass-only group was out of condition. And, even though they went back on the same grain schedule as the other group, they never did catch up. By February, they were behind by 1,750 lbs. milk per cow.



pasture pays!

HERE'S THE STORY MONTH BY MONTH

Amount by which Purina-fed group exceeded grass-only group month by month (most of this extra milk was gained during the period of highest milk prices).

MONTH	PURINA AND GRASS-FED	GRASS ONLY
April 24 to May 1		150.1 lbs.
May		31.4 lbs.
June	598.0 lbs.	
July	1,165.5 lbs.	
August	1,339.9 lbs.	
September	1,314.7 lbs.	
October	1,033.8 lbs.	
November	1,061.2 lbs.	
December	3,384.4 lbs.	
January	3,988.1 lbs.	
February	2,048.1 lbs.	

TOTAL 15,752.2 LBS.
OR 1,750 LBS. MILK PER COW

Your cows need more than grass alone

There's a reason why Purina's "grass-only" experiment ended the way it did.

Grass is good for cows and cows like grass, but grass is up to 85% water and there just isn't room in a cow to pack enough grass to provide her with the NET intake requirements she needs to give milk and stay in condition at the same time.

That's why cows on even top pasture need a good milking ration . . . to help them meet their dry nutrient requirements.

SEE YOUR NEAREST PURINA DEALER for his recommendation as to Purina milking rations best suited to your herd's producing ability and body condition, and pasture available on your farm.

FEED **PURINA** . . . YOU CAN DEPEND ON THE CHECKERBOARD FOR QUALITY . . . SERVICE

"I was first in Lake County to use pneumatic tractor tires...

I STARTED ON FIRESTONES AND I'VE FARMED ON 'EM EVER SINCE!"

says Raymond E. Siegel, Mentor, Ohio. "Firestones give fine traction winter and summer. The open-center treads clean out and grip in any soil—in all these years, I've never seen a tire to compare with a Firestone. And Neil Franz, my Painesville Firestone Dealer, backs Firestone wear with good, dependable service."

Firestone's new All Traction Champion* tractor tire gives you longer service and top performance on all farm jobs. Tough tractor tire tests prove Firestone S/F (Shock-Fortified) cord gives the tire greater impact resistance. Its tread is built with Firestone Rubber-X, the longest wearing rubber ever used in Firestone tires. The flat tread contour, with curved and tapered traction bars, cleans easily and gives positive grip in any soil condition.

And a special Firestone Rubber-X compound is used exclusively in sidewalls to resist aging, cracking and costly flex damage.

See your Firestone Dealer or Store and find out how Firestone Tractor Tires give you extra service at no extra cost! See Firestone's complete line of farm tires. And remember, Firestone's Free New Tire Loaner Service keeps your equipment rolling while your Firestone Dealer or Store retreads or repairs your old tractor tires.

CHAMPION GUIDE GRIP* FRONT TRACTOR TIRES

give you easier steering
better cleaning • longer wear

*FIRESTONE T.M.

ALWAYS A YEAR TO PAY

Firestone

BETTER RUBBER FROM START TO FINISH

Enjoy the Voice of Firestone on ABC television every Monday evening

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(Continued from page 539)

of milk and to furnish producers with market information"). None of these services have been performed for us but we still have the 5-cent marketing service fee deducted from our milk check.

Do you wonder why I ask: Is this still the United States of America our forefathers started?

Iowa LAWRENCE KENNEDY

More rubber mats

I have just finished reading, "80 cows on rubber!" I thought you would be interested to know that on Spring Valley Farm in Wellington (owned by Anthony Blasius) there are 46 cows on mats and 98 stanchions with trainers, of which 52 are comfort stalls which Crocker Brothers do not use.

We have had our mats and trainers two years and they save us one-half on bedding. We have 112 head of registered Holsteins and a 12-stall, walk-through milking parlor with two milking pits. Milking 41 out of 60 cows at this time. My husband, Charles, has managed this farm for over two years.

Ohio MRS. RAMONA LINDSEY

Too much "cow"

Let us take another look at your February 25 issue. It this what you call American journalism? Don't you think we Americans are tired of looking at the hind end of a cow on the front pages of your paper when such rotten frauds and waste are to be exposed and fought against?

What matter the production per cow, the price of milk, etc. when the whole country is faced with ruinous inflation, war, social security fraud, and government waste and inefficiency everywhere? What is your position . . . to help the farmer, a 10 per cent minority group . . . or save the country?

There is no real farm problem except that which is created by the government to make jobs and elect dishonest officials. Where is the fight, where is the journalism of old—forget the cows, forget the feed, forget the land.

Save the country!

Ohio C. FRANK FAYNE

Defends low producer

Hurrah for W. Gustafson, who is grateful for the inefficient cow and farmer. I finally found someone who agrees with me.

The low-producing cow is filling a stanchion, eating corn and hay, until the efficiency experts prod you into replacing her with a cow that produces twice as much. Every dairyman I know who belongs to the D.H.I.A. does not cut down on cow numbers. He gets more cows and finally hauls it out in bulk trucks.

When the car manufacturer cannot sell as many cars he cuts down on production. We farmers do the opposite, we raise bigger crops, milk more and better cows, and get less and less for our product.

If every farmer got rid of his "boarders" this month, what would happen to the beef market?

Minnesota B. PETERS

For standard time

I was happy to see C. W. Thompson's letter about standard time in your columns. I wish every person who reads your magazine would

take the time to write his Congressman.

Towns in our area voted on the time issue and voted for standard time two to one. Yet the city councils in several towns took it upon themselves to put daylight time into effect.

Some friends and I have gathered signatures of over 300 persons in this area. They include farmers, rail workers, factory and knitting mill employees, business men, prison guards, townspeople of various occupations and all agreed it's time **now** to stop the daylight time and keep it from spreading ever further. The way to do it is to support the standard time bill right now.

Illinois MR. RAY THIES

You need a ladder

Instead of using a snow fence on top of a silo to "assure full capacity" we use welded mesh wire and find it much easier to handle.

John Krill's "handy hint" (February 25) says nothing about the poor fellow who is expected to crawl down off the top when the silo is full. You see, the silo chute and ladder don't extend up along the snow fence.

We have taken care of this very easily. We have a short steel ladder constructed from two cylinder bars from a 60-inch combine and steps also cut from the same material making a ladder nearly 5 feet long. The lower ladder step is set inside the top silo step and fastened securely on the lower ladder step on top of the silo and the lower ladder rails inside the silo so pressure from silage holds it in place. Top of ladder is fastened securely to silo railing.

Kansas HOWARD MANNEN

Less than ecstatic

In contrast to your January 25 article and your editorial comments of February 25 on the Virginia milk quotas, the enclosed clipping from the Washington Post and Times Herald would make it appear that the consumer in Virginia has reason to be somewhat less than ecstatic.

New York W. E. DEWAR

The clipping was an advertisement indicating that gallon jug milk in Virginia costs 18 cents per gallon more than in Washington, D. C. —Eds.

Prompt service

Several months ago, I purchased two ring and bolt truss plans through your Hoard's Dairyman Plan Service. These, I am happy to say, came by return mail.

Your publication certainly is looked forward to in this household. We are new at the game of farming and many times your magazine has arrived at just the right time to help us with a problem. We wouldn't farm without it. Keep up the good work!

Washington MERVIN W. JENSEN

Appreciate a milk cow

Your article on the udder was very good. It is fascinating. How many people know what it takes to produce good milk, lots of milk? How many know the workings of a cow and how she manufactures milk? Anyone who knows this can appreciate a cow that much more.

Texas ALBERT H. SCHIVITZ

You decide if De Laval stops milking slowdowns

Judge a De Laval for yourself, by yourself, on your own cows. It's the one sure way to decide if De Laval stops the milking slowdowns that are so common with other milkers.

Only De Laval invites you to judge a milker for a week or more entirely on your own . . . *without a salesman looking over your shoulder.*

We're doing this because *any dairyman* can operate a De Laval with ease. What's more, the advantages of De Laval milking will come right out in the open when you use our milker.

See for yourself how much time and labor you'll save by getting rid of milking slowdowns—those troublesome snags that slow you down every milking. No more pulsator tune-ups. No more hand stripping or excessive machine stripping. No more sore, swollen teats caused by rough, pounding milkers. And no more washing slowdowns either . . . because De Laval milkers have far fewer parts to wash.

It's as simple as this: Ask your nearby De Laval Dealer to deliver a Suspended or Pail-Type unit. If De Laval doesn't stop milking slowdowns for you, then have him pick it up—*no questions, no obligations.* Just say "No," that's all. Why not try a De Laval at tonight's milking?

10% down . . . up to 4 years to pay

DE LAVAL

THE DE LAVAL SEPARATOR COMPANY,
Poughkeepsie, New York
or 5724 N. Pulaski, Chicago 46, Illinois

DE LAVAL PACIFIC COMPANY
201 E. Millbrae Avenue, Millbrae, Calif.

Look for this colorful, life-size display at your De Laval Dealer's. It's your sign of friendly, helpful service.

GMC OPERATION "HIGH GEAR"

brings you the tough, "Farm-Bred Trucks" you asked for!

GMC's vast engineering, design and quality-control program is building a brawny new breed of top-value trucks . . . with rugged features farmers want!

You asked for a pickup that could handle more—and bigger—jobs around the farm. GMC's built 'em that way, with the same front crossmember we use on larger trucks, and the strongest rear axle in their class. You wanted more power, too; power to haul full loads over steep grades and muddy farm fields. You get it in a GMC—every "Farm-Bred" pickup has a true, *truck-built* engine. You get a tailgate that doesn't spring under heavy weights; *four* coats of protective finish, instead of just two or three. Plus easy good looks and long, *long* service. To put it another way, you get the best truck value on the road today. Your GMC dealer would like a chance to prove it. See him soon. GMC Truck & Coach — a General Motors Division.

You'll be as proud of its good looks in town as you are of its performance on the farm.

GMC pickups carry a competitive price tag, yet you're many dollars ahead in standard equipment alone!

• GMC *truck-built* engine • Strongest rear axle • Heaviest front crossmember • M-400 bearings with 7 times longer life • Fast-ratio cruising axle • Synchromesh transmission • Double wall cab and body construction • Foam rubber seats • Wood body floor with steel skid strips • Steel moldings around window glass

From ½-ton to 45-ton . . . General Motors leads the way!

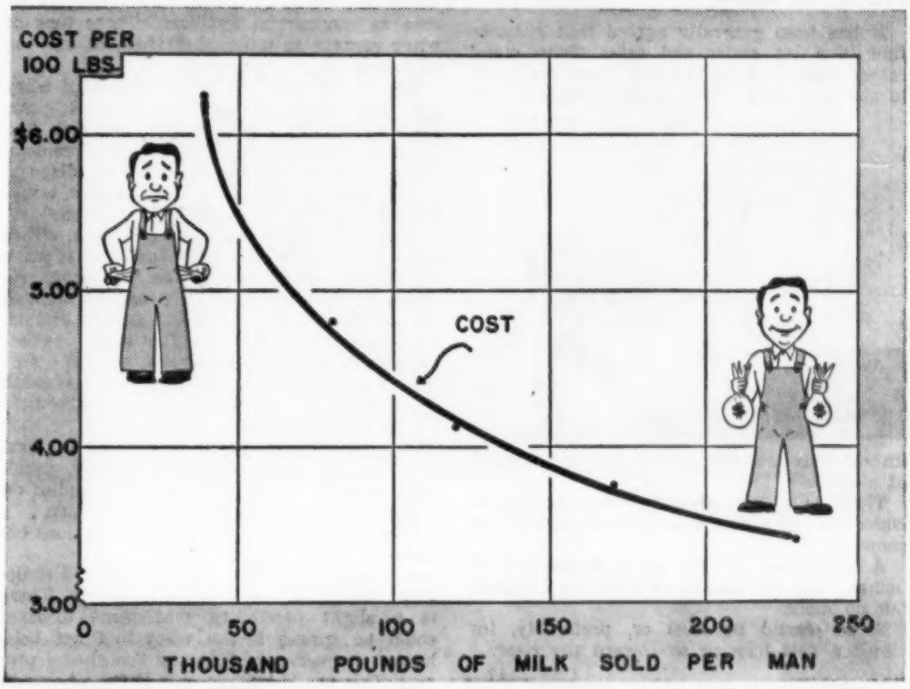
GMC
GENERAL MOTORS CORPORATION
TRUCKS

HOARD'S DAIRYMAN FOUNDED IN 1885

How much does it cost to produce milk?

On 556 New York dairy farms, it cost $4.87 to produce 100 pounds of milk. Here is the cost breakdown.

by L. C. Cunningham



POWERFUL INFLUENCE on costs of producing milk was amount of milk sold per man. When farmers sold only 50,000 pounds or less per man, average production cost was $6.25 per hundred. But, costs dropped sharply to $3.40 on farms which sold 200,000 or more pounds milk per man.

UNDER the economic conditions which have prevailed during the current dairy year ending with turning-out time this spring, the **average** net cost of producing 100 pounds of milk on New York State dairy farms has been just under $5, or $4.87 to use the actual figure.

This average cost of $4.87 for the current year is based largely on a systematic study of 556 commercial dairy farms located in the North Country region of the state. This study covered the 12-month period ending May 1956.

The herd size averaged 27 cows; milk production per cow was 6,785 pounds on a 3.7 per cent butterfat test. The average net cost of milk production in this group of farms was $4.27. Adjusted first to a whole-state basis and next for the change in the level of costs since that period, the $4.27 becomes $4.87 for 1958-59.

Two questions: How did the cost compare with the price received for milk? What farm-to-farm differences in costs were found?

For the May 1958 to April 1959 period to which the $4.87 cost figure applies, the average blended price received by dairymen amounts to $4.52 per 100 pounds (3.7 basis). Since the **average** cost exceeded the price received by 35 cents per 100 pounds, dairymen did not earn, on the average, the full labor charge used in the cost calculations. More realistically stated, some dairymen had very high unit costs and others had low unit costs.

As stated earlier, the average net cost of milk production on the 556 farms was $4.27. These farms are a 10 per cent random sample of all of the commercial dairy farms located in that particular region of the state.

Nine per cent of the farms had costs of $6 or more per 100 pounds of milk produced. Costs equal to or in excess of $5 were found on more than one-fourth of the farms.

In sharp contrast, 16 per cent of the farms had costs of less than $3.50 and 36 per cent of them had costs under the $4 level.

In terms of milk instead of number of farms, nearly one-half of the milk was produced at a cost of less than $4 per 100 pounds, and about 80 per cent was produced at a cost of less than $5. The cumulative percentages of milk produced at less than specified costs were as follows:

Cost per 100 pounds less than:	Per cent of total milk
$3.00	3
$4.00	46
$5.00	81
$6.00	95

Such a wide range in production efficiency, found in most other dairy regions as well as this one, reflects the rapid changes some dairymen are making in their farming operations. Let us next look at the different items of cost.

The author is a professor of farm management at Cornell University, New York.

Feed is major item . . .

Feed amounted to $142 per cow, and accounted for 46 per cent of all costs (see table on page 574). Compared with other regions of the New York milkshed, North Country dairying is somewhat more extensive in nature—milk and feed levels per cow are lower, a larger proportion of the milk is produced during the pasture season, and farm wages and real estate values are somewhat lower.

The average quantity of grains and other concentrates fed amounted to about 1,800 pounds per cow, most of which was purchased. The roughage fed consisted of 3.0 tons of hay, 1.7 tons of corn silage, and 0.5 tons of grass silage per cow.

The purchased feed cost $74 per ton and the homegrown feeds were charged at the following prices per ton: Grain, $57; hay, $17; corn silage, $8; and grass silage, $6. The pasture charge, including both regular pasture and aftermath grazing, was $10 per cow.

The amounts of nutrients from the various barn-fed feeds were calculated by applying appropriate percentages of T.D.N. to the amounts consumed. The T.D.N. obtained from pasture was calculated as the residual amount unaccounted for out of the total T.D.N. requirements per cow for body maintenance and milk production obtained from grain, hay, and silage.

The relative light rate of grain feeding is reflected in the fact that only 22 per cent of the total nutrients were from grain and other concentrates (see chart on page 574). Hay supplied nearly one-half of the total nutrients. Silage was the least important source—10 per cent.

A goal for dairymen generally has been to obtain at least 75 per cent of the total nutrients for the cows from roughages and pastures, even at relatively high levels of production per cow.

Labor $89 per cow . . .

The labor used directly in doing the cow chores, including milking, caring for the milk, feeding the cows, cleaning the stable, and miscellaneous jobs, amounted to 118 hours per cow. The range was wide in chore time per cow on different farms. The job took less than 100 hours per cow on 34 per cent of the farms, but it required 150 to 199 hours on 17 per cent of the farms, and 200 hours or more on another 7 per cent of the farms.

Variation in size of herd explained much of this difference in the amount of labor per cow. With small herds, average chore time was nearly 150 hours per cow. But, with herds of 40 cows or more, the average time was only about 100 hours per cow. This was true even though the rate of milk production per cow was somewhat higher in the large herds than in the small herds.

The average labor rate charged was 75 cents per hour. This labor rate, applied to the time spent on the cow chores, gave a labor cost of $89 per cow. Labor represented 29 per cent of the total cost of producing milk.

The annual cost of building use for the cows amounted to $16 per cow. It was 5 per cent of the total costs.

Twenty per cent of the cows in the herds were replaced during the *(Turn to page 574)*

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

COWS PREFER STEPS TO RAMP

It has been generally agreed that animals find it a lot easier and safer using steps rather than a ramp in going from one level to another. Many of the newer milking parlor

installations are making use of steps instead of a ramp.

There is a big advantage in using steps when the construction is exposed to sleet or snow.

A good reach or run for such steps is 18 inches. The rise can be as much as 7 inches, but no more.

Steps should be level or, preferably, inclined a half inch or so toward the riser.

CONTROLLING SCOURS MAIN BENEFIT

According to U.S. Department of Agriculture scientists, the major advantage of feeding aureomycin to dairy calves is the reduced incidence of scours, not the temporary increase in growth rate.

In experiments conducted at Beltsville, Md., calves were fed aureomycin as part of their diet for the first 90 days after birth. A smaller percentage of the antibiotic-fed calves developed scours than the control animals.

While differences were not large, they were consistent for all ages and all periods during the trials. Three of the control calves died of diarrhea during the trials.

Aureomycin-fed calves gained an average of 19 pounds more than the control group. However, when the antibiotic was removed from their diets, these calves gained less rapidly than the controls. At 6 to 12 months of age there was no significant weight difference between the aureomycin-fed calves and the controls.

Apparently aureomycin stimulates appetite and rate of weight gain and increases feed efficiency while it is being fed. After aureomycin feeding is stopped, rate of gain decreases and appetite returns to normal. Research also has demonstrated that these feeding advantages diminish as the calves grow older. Feeding aureomycin is seldom profitable after calves reach 2 months of age.

WHEY — SOURCE OF FERTILIZER

Wisconsin scientists report that whey, a by-product of the cheese industry, has some potential as a source of fertilizer.

A ton of whey contains about 3 pounds of nitrogen, ¾ pound of phosphorus, and 3½ pounds of potassium, plus small quantities of sodium, calcium, magnesium, and chlorine. It would cost about $1 to purchase these nutrients as commercial fertilizer. Three tons of whey contain as much plant food as one ton of manure.

Reportedly, some 5 billion pounds of whey are produced in Wisconsin alone each year. Less than half of this is processed into feed products; the rest causes a disposal problem. If it could be used as fertilizer, the disposal problem would be solved and farmers would have an additional source of plant food.

A 4-year study revealed that grasses, either hay or pasture will benefit from a total whey application of 20 to 50 tons per acre. As much as 200 tons per acre can be applied without injury if the disposal area is limited. Corn will benefit from similar whey applications made at least two weeks prior to planting. Further studies with corn will determine the optimum level which may be somewhat higher than these.

Alfalfa will tolerate a total whey application of 100 tons per acre. However, maximum benefits result when whey is applied on a non-legume crop such as grass or corn.

Oats will not tolerate whey applications because of danger from lodging.

Applying whey also will improve soil structure, making the soil easier to work. There is a slight possibility that some diseases could be spread if the whey had not been heated or pasteurized during the cheese process. This would happen only if the whey was put on in such a quantity to cause standing puddles of whey in the field. Even this could be avoided by keeping cows out of the field until the whey soaked into the ground.

It appears if a farmer has or can obtain equipment to haul and spread whey, and if he has a good source, it can be put to good use.

NON-SUPPORTIVE STRAINERS CAUSE TROUBLE

Recent tests at Cornell University prove that non-supportive strainers are a big reason for poorly-filtered milk. The tests further showed that it doesn't pay to be misled by price tags. There was no correlation between price and efficiency of milk filters. Some low-priced filters do better than expensive ones, especially with supportive strainers.

Eighteen different filters were tested by Professor R. P. March and his colleagues. Nearly all showed poor results with strainers that gave support only at the outer edges.

According to March, ruptures, which are common in non-supportive filters, often are not visible to the naked eye. No matter how conscientious you are, if you cannot see the rupture that is letting sediment through, your milk will be rejected and your income reduced.

Only four filters tested were satisfactory with both supportive and non-supportive strainers. Five were satisfactory with supportive, but not non-supportive ones, and nine proved poor in either case.

Flannel filters were not much affected by the type of strainer used, but most were not as good as some other fully-supported materials, including some cottons and wafer-thin synthetics, which did "amazingly well."

Companies producing filters have been given the Cornell test results and according to March, are now correcting the current filter situation where necessary.

USE 2,4-D OR SIMAZIN

A Rutgers University weed specialist says that 2,4-D is still the cheapest and generally most effective chemical for weeding field corn, although some farmers may wish to try simazin.

The ester form of 2,4-D is used before weeds and corn come up. Use at the rate of 1½ quarts acid equivalent an acre, applied in the amount of water your sprayer delivers on an acre. For best results, spray two or three days before the corn comes through—usually five to seven days after planting. This treatment gets the broad-leaved weeds and annual grasses that have not emerged.

For chemical weed control with 2,4-D after corn and weeds are up, the amine form is used at the rate of one pint an acre. This treatment works best when weeds are small and corn is not more than 12 to 18 inches tall.

Simazin costs about four times as much as 2,4-D, but it is worth it for there are many late-germinating grasses in the corn field. Among these are foxtail, barnyard grass, and crabgrass.

Dr. D. A. Schallock says that 3 pounds of 50 per cent wettable simazin powder in water to cover an acre will control most weeds all season.

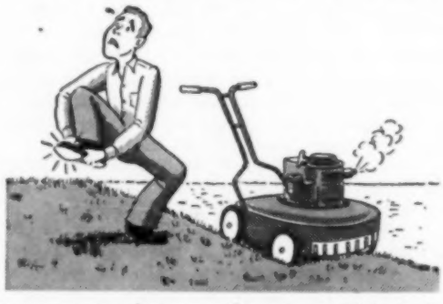
Cultivation may turn up new weed seeds that will germinate, destroying some of the effect of the chemical. Therefore, it is best to delay cultivation until the corn shades the ground.

Simazin drift does not harm vegetables and ornamentals. For best results with simazin, the soil should be moist. If applied on dry top soil the effect of the chemical for killing weeds will be poor.

AVOID POWER MOWER MISHAPS

To avoid an accident when using a power lawn mower, here are some rules that everyone should follow:

1. Before mowing, walk over the lawn and pick up toys, stones, wire, and other debris.
2. Do not allow children to operate power



mowers nor play near the mower while it is running.

3. Do not leave the power lawn mower unattended.
4. Wear heavy leather shoes, preferably high tops, while mowing.
5. Always be conscious of the danger that exists from getting hands or feet under the mower.

There are many self-propelled power mowers being sold. Remember, this type is inherently more dangerous than the hand-propelled type.

Should you buy a herringbone system?

It is becoming well-established in dairy areas. Here are some facts that may help you in deciding which milking system best fits your farm.

by C. R. Hoglund

FOUR COWS AT A TIME are let out by Robert Denham from one side of his herringbone parlor. Space is available to add a stall or two on each side to expand to a 100-cow operation.

THE first herringbone milking system in the United States was built near Elgin, Ill., two years ago. It is estimated that by February 1959, there were in the Midwest from 800 to 1,000 herringbone systems either in operation or in some stage of construction. There were about 80 installations in Michigan by this date.

The herringbone milking system was introduced to this country from New Zealand where it has been used for several years. A 16-stall herringbone using 8 milker units is apparently used quite extensively. Milking rates of 60 to 90 cows per man-hour have been claimed.

It should be pointed out that conditions in the United States are quite different from those in New Zealand. New Zealand dairymen are on a world butter market, hence, place more emphasis on total volume per man than on output per cow. These dairymen compete with very efficient dairymen from Denmark, hence, must keep unit costs low. No grain is fed in the milking parlor, eliminating one operation.

The most successful commercial dairy farmers in the United States producing for a fluid milk market, find it profitable to maintain milk production at levels of 10,000 pounds or more milk per cow and at the same time economize on the use of labor.

Why the interest?

Higher investments in bulk tanks and other dairy equipment resulting from changes to bulk milk handling have encouraged dairymen to enlarge dairy operations. The increased cost and difficulty in obtaining reliable hired help have stressed the need for using labor more effectively.

Dairy farmers have lagged far behind cash crop producers and industry in reducing labor requirements. A recent Michigan study showed an average milking rate of 14 cows per hour for 80 per cent of the D.H.I.A. members. Dairymen using the more efficient milking parlors milked 30 to 50 or more an hour.

An important reason why the herringbone has appealed to so many dairymen is the opportunity to reduce labor. Walking distance between cows' udders is only 36 to 38 inches in the herringbone and 8 or more feet in other parlors. Letting cows in and out in groups of 4 to 10 rather than individually also reduces milking time.

Experience of dairymen . . .

Almost all of the first herringbones built in the Midwest were 12 stall or what we refer to as double 6's. It was only during the last few months of 1958 that dairymen in Michigan and other states started building double 4's, double 5's, and double 8's. Other sizes built include double 9's, double 10's, double 12's, and single 4's, and 6's.

The 20 dairymen who built the first double 6 herringbones in Michigan were milking from 35 to 160 cows per farm during 1958. One-half of these dairymen had doubled the number of cows milked since installing the herringbone systems.

Eleven of the 20 dairymen will be milking from 100 to 200 cows in 5 years if their plans materialize. It will take top management and adequate finances to make a go of these larger units.

Total investment for these double 6 herringbone systems ranged from $10,000 to $14,000. This included the cost of the building, stalls, feeders, pipe line milking system, room heaters, but not the bulk tank. A few dairymen who did most of the construction work reduced their investments by $1,200 to $1,800 per farm.

Investment in one-man milking systems

System	Investment [1]
	Dollars
HERRINGBONE	
Double 4	6,600
Double 5	7,600
Double 6	8,500
WALK-THROUGH	
Double 3	5,800
U PARLOR	
3 Stall	5,400
4 Stall	6,600
SIDE OPENING	
3 In line	5,600
4 In line	6,500
Double 2	6,600

[1] Includes cost of building, stalls, feeders, and milking equipment but not bulk tank and other milk room equipment.

The double 6 herringbone system has been promoted as a one-man operation, yet one-half of the Michigan dairymen used two men, or a man and a boy in the milking pit. Several of these dairy farmers indicated that six milker units were too many for one man to handle alone and too few to keep two men busy. A few dairymen appeared to be doing an excellent job with six units.

Ray Teschler of Richmond, Mich., who installed the first herringbone system in the state, has been operating it since November 1957. One year later when cows were milking at their peak, Teschler averaged 50 cows milked per hour. We consider this an excellent rate of milking for a double 6 herringbone.

Teschler often milked at the rate of one cow per minute during late February 1959 when his cows were not at peak production. He cautioned that this was a maximum rate which did not hold when he encountered special operations such as treating cows, replacing teat cups that fall off, or replacing filter pads. Ray Teschler indicated that if he were depending on hired labor to do the milking part or all of the time, he would use only five stalls on each side and five milker units.

A recent Michigan State University study of chore time showed that it was possible to milk two to five more cows per hour with a double 6 compared to a double 5 herringbone. An Indiana study indicated that one man could milk almost as many cows with four as with five or six milker units.

Plan for flexibility . . .

Whether a dairyman installs a herringbone system with four, five, six, or more milker units and stalls depends on who does the milking, his age, and present and future cow numbers. It is believed that only the exceptionally capable, young dairyman should attempt to handle six milker units. For a hired man or an elderly operator, four or five milker units are sufficient.

The dairyman who installs a herringbone system when he is milking less than 50 cows needs to consider the *(Turn to page 554)*

The author is an agricultural economist at Michigan State University. This article is based on a study of 38 herringbone milking systems and 25 conventional milking parlors in Michigan, Illinois, Indiana, and Wisconsin.

REAR WEIGHTS are needed if the equipment being pulled doesn't transfer enough weight to rear wheels. Tail wheel on the plow helps adjust correct weight transfer to rear wheels.

Keep tractor properly weighted

If your tractor spins its wheels or if the front end seems light, it may be in need of additional ballasting, or weight.

by Melvin E. Long

FRONT FRAME WEIGHTS are needed here because four-bottom mounted plow transfers large amount of weight to rear wheels. No rear wheel weights are required.

WEIGHTING your tractor can reduce wheel slippage, thereby saving fuel and reducing tire wear. Safety is also an important advantage in front end weighting. When the front wheels of a tractor leave the ground, you have little control over the direction of travel.

In recent years, there has been a definite trend toward higher horsepower-to-weight ratios in tractors. This simply means that the horsepower of new tractors has increased more than has their weight.

The amount of drawbar pull is limited in the lower gears by the weight on the rear wheels. The pull will vary from 50 to 70 per cent of the weight on the rear wheels, depending upon the type surface upon which the tractor is operating. Generally, since you have little control over the type surface, you must control slippage by weighting.

Iron or liquid weights . . .

Weight can be added to the rear wheels either in the form of cast iron or liquid. In many cases, you probably will need to use both. The liquid is a mixture of water and calcium chloride, to prevent freezing. The filling is a job for your dealer or tire service store. The rear tires normally are filled from 75 to 90 per cent full. The 90 per cent fill gives more weight but the tires have less cushioning effect as there is very little air space left.

Solution has the advantage of not occupying any additional space on the tractor. However, because of the special filling equipment required, normally it is considered a permanent part of the tractor and cannot be removed when the tractor is used for light draft jobs.

Calcium chloride is very corrosive to metal parts. So, do not use your regular gauge to check the pressure. There are three possible ways of checking pressure of solution-filled tires.

1. Use a special gauge constructed for the purpose. Your dealer should be able to supply you with this type.
2. Place the tractor on a smooth, hard surface and inflate the tires until you can just get a finger under outer end of tread bar.
3. Use a special template available from some tire companies. This template is placed beside the tire and measures the height from the ground to the rim.

Frequently, cast iron wheel weights are used in addition to liquid ballast. This portion of the weighting can be added or removed to suit varying traction conditions.

You probably can't do much about the ease of installing and removing wheel weights on your present tractor, but it is an important item to check before you purchase a new tractor. For instance, weights of about 100 pounds can be installed relatively easy by one man, if provision is made for a knob or ledge in the preceding weight. This will support the weight while you get the nuts on the attaching bolts. If provision is made for the attaching bolts to be held solid while you slide the next weight in place, you will have little difficulty in attaching weights.

If the weights must be supported in exact location while bolts are inserted and nuts tightened, it becomes a two-man job.

How much weight can you add to your tractor rear wheels? You should consult your dealer for exact information because many factors enter into the problem. Here are some representative values of maximum **total** weight recommended:

11-28	— 4 ply at 14 psi	—	2,070 lbs. per wheel
12-28	— 4 ply at 14 psi	—	2,430 lbs. per wheel
10-34	— 4 ply at 16 psi	—	2,035 lbs. per wheel
10-36	— 4 ply at 16 psi	—	2,100 lbs. per wheel
12-38	— 6 ply at 20 psi	—	3,470 lbs. per wheel

This total weight per rear wheel includes weight of tractor, liquid in tires, and added weight. Remember, excessive tire weighting will cause early failure of your tires.

The addition of several weights per rear wheel often makes it difficult or even impossible to adjust wheel tread without removing the weights. However, proper indexing or turning of the weight can reduce this problem. For instance, if your tractor has the rack- and pinion-type of wheel tread adjustment, correct installation of the weights will allow you to reach the adjusting bolts without removing the wheel weights.

If it is necessary to change the wheels on your tractor from side to side to obtain maximum tread adjustment, be sure to use extreme care when doing this job. A large tire and wheel filled with liquid and cast iron weights can very readily crush a man, if allowed to fall. At one point in the job it is necessary to have both rear wheels off the tractor. If a wheel is allowed to fall against the tractor, it easily can upset the tractor.

With the advent of hitch-mounted tools, front weighting has become increasingly important. The front tires can be filled with liquid. But their small size does not provide for a large amount of weight. Some manufacturers provide cast iron weights for the front wheels. However, liquid in the front tires or cast weights on the front wheels tend to make the tractor difficult to steer, especially at transport speeds.

Cast front wheel weights are also difficult to install or remove because of the "squatting" position required to properly position the weights.

Cast iron weights which attach directly to the tractor frame are easier to install or remove, since you can stand erect to hold them. In addition, they do not affect the steering characteristics as much as the front-wheel-mounted weights.

Don't overload tires . . .

Most frame weights are designed so that they must be removed in order to mount a front cultivator. Even if it is not necessary on your tractor, it is a good idea to do so.

Generally, some form of front weighting is required with rear-mounted tools. The weight removed from the front wheels by the implement is added to the rear wheels to provide increased traction. The rear wheels may be likened to the pivot of a lever. Both the front weighting and the rear-mounted tool are prying downward on the rear wheels.

One of the reasons for the importance of easy installation and removal of weights is the fact that they should be removed for conditions or jobs where maximum traction is not required. Excess weighting on these jobs increases soil compaction as well as increasing fuel consumption.

A good "rule of thumb" for weighting is to use enough to prevent visible slippage of the rear wheels, and enough front weight to retain safe control of the tractor. The exact amount needed will vary with the type of work being done with the tractor. **THE END**

Questions and answers on hay wafers

Still in the experimental stage, this hay-making method promises minimum labor and chance for full mechanization of forage feeding.

by H. D. Bruhn

IN THE important group of pelleted livestock feeds a newcomer in the form of large-size "wafers" made of chopped or long forage is creating a great deal of general interest. To bring you up-to-date on recent developments, I have listed a dozen pertinent questions and their answers.

Why all the interest in wafering hay?

Wafering or any other procedure of compressing forage crops into small compact shapes (1) makes it much easier to handle the forage by mechanical means, (2) reduces the storage costs, and (3) facilitates transportation.

The procedures of feeding hay to cows in mangers has not changed much in 2,000 years.

The forage pellet or wafer promises the farmer an opportunity to mechanize not only harvesting but storage and feeding as well. Hay in this form can be handled in conveyors, and feeding may become a push-button operation where 100 cows can be fed as easily as 10.

In the coastal regions, wafering could bring about appreciable savings in transportation of forage to dairies near large population centers.

Which term is correct, hay pellets or hay wafers?

Exactly what to call this compressed forage is a problem. We frequently refer to it as pellets for want of a better name. However, the word, pellet, in the past usually referred to a rather small, hard particle produced of ground concentrates. Later ground forage was added to concentrates and made into pellets.

The term, wafer, on the other hand, describes well a compressed forage product now being produced commercially on the West Coast by large stationary machines and experimentally by at least one major implement manufacturer in an advance model portable field forage pellet machine.

These wafers are three to four inches in diameter and are about one inch thick. They are made of chopped or long forage which is not ground before it is compressed.

However, we already have experimentally produced shapes in which the thickness was greater than the diameter, and other forms. One similar to a biscuit and another similar to macaroni have appeared. It may be that we shall have to wait until the final machines are made and then find a descriptive name for whatever shape they produce as determined by the ingenuity of the design engineers.

Will these hay wafers meet a particular livestock requirement?

The small, hard, conventional pellet made of ground ingredients gives excellent and often superior results when fed to most animals and fowl, except the dairy cow. When the dairy cow gets her complete ration in the form of finely-ground ingredients, whether pelleted or as meal, the butterfat content of the milk is apt to be lowered appreciably.

There is no cud chewing and it has been pretty well established that the ground material passes through the cow's rumen too rapidly for proper development of rumen fatty acids, and the cow puts fat on her back instead of in the bucket.

This abnormality can be corrected by feeding as little as six pounds of coarse roughage per cow per day. In some observations, the cow herself took care of the matter by eating the bedding or some other coarse material.

Supplemental roughage feeding is apt to be a hand operation somewhere along the line and not the mechanical-handling and labor-saving procedure we are hoping to attain. Besides, fine grinding of forage is a costly procedure which is not justified in the case of dairy cattle feeding.

What machinery is available?

One West Coast manufacturer advertises for sale stationary hay-wafering machinery. These machines also are available mounted on a trailer to transport to various locations. They are heavy machines and probably will be utilized primarily by feed-processing plants. They are not intended to be used as a pickup machine in the field.

Two of the major implement manufacturers have released information on experimental machines which are designed to pick up hay from the swath. One of these machines produces wafers which are then loaded directly into a trailing wagon. Several other manufacturers have experimental equipment in various stages of development.

Can complete rations be wafered?

Any reasonable quantity of concentrates can be incorporated in forage wafers. Such a procedure may not appeal to many farmers in the dairy regions who grow their own forage. Most likely they will prefer to produce wafers directly in the field at forage-harvesting time. However, it may prove desirable to large dairies purchasing most of their feed.

Wafers of an essentially complete ration could readily be self-fed, and the high-producing cows could be given supplementary concentrates in the milking parlor.

Another possibility is *(Turn to page 568)*

The author is professor of agricultural engineering, University of Wisconsin.

PORTABLE HAY-WAFERING MACHINE processes three tons hay per hour. The 2- by 4-inch wafers are compressed under 6,000 pounds pressure.

STATIONARY WAFERING MACHINE is very heavy and probably will be used chiefly by feed-processing plants; not intended for field pickup.

You can kill brush with chemicals

If brush is crowding out your pasture and robbing it of moisture, nutrients, and air, here are four major ways of chemical control.

by R. H. Beatty

DOES buckbrush dot your fields? Has blackjack oak covered most of what used to be profitable pasture land? Are alders or brambles invading?

Are you raising cows or brush in your pastures? If cows, you don't have to be reminded of the income your pastures are producing. However, if your land is full of unwanted growth, better take a careful look at it and consider critically what you see.

Fortunately, modern chemicals chosen wisely and used properly can make short work of such situations, whether on small pasture lots or vast range lands.

Of the materials currently available, the two used most widely are 2,4-D and 2,4,5-T. These are not toxic to humans or wildlife at concentrations used in controlling woody plants. Their selectivity in controlling these plants and broadleaf weeds with little or no injury to grasses is unequaled.

You can choose between four major techniques commonly used to control woody plants chemically, foliage spraying, basal spraying, stump treatment, and frilling.

Foliage spray is a good growing season treatment which you can apply with ground equipment using a high volume of solution or by airplane using economically low volume sprays.

For foliage sprays, you can choose between three chemicals, 2,4-D, 2,4,5-T and ammonium sulfamate. Although you will find that it is less selective than 2,4-D and 2,4,5-T, ammonium sulfamate is very effective on many woody plants which resist 2,4-D and 2,4,5-T compounds. Its use is limited to application with ground equipment because of the large volumes of water needed. With 2,4-D and 2,4,5-T formulations, relatively small amounts of chemical are needed and, therefore, low volume airplane application of certain plants is practicable.

The particular chemical you choose will be determined largely by the plants' individual response. In the case of willow, 2,4-D is most effective, while thorn apple responds best to 2,4,5-T.

When mixed species are present, a combination of 2,4-D and 2,4,5-T or ammonium sulfamate would be indicated, depending on the type of plants that were present. 2,4-D and 2,4,5-T are formulated for use on woody plants as low volatile ester (such as the butoxy ethanol ester) or, particularly in California, as oil soluble acids.

In applying a foliage spray, the volume of solution you apply is just as important as the concentration you use. **Be sure to apply enough to cover the foliage thoroughly.**

Spray heavy spring growth . . .

In general, the best time to spray most woody plants is after they have come into full leaf and have finished their first heavy spring growth. You will get the best results from applications made after the foliage has become fairly mature.

Under Midwestern conditions you can count on continuing foliage spraying for a period of several months. However, certain plants, especially those in the Southeast, are best treated at very critical times during their growing season. For example, sand sage is most sensitive to 2,4-D over a very short period when the stored food reserves are at their lowest point and mesquite response is best when moisture has been adequate during the period before growth starts.

From available data it seems important that 2,4-D and 2,4,5-T be applied when the stored food supply is lowest, when the leaves are of medium age, and when the plants are replenishing their food reserves. Some plants, like locust and scrub oaks, have extensive root systems in which they apparently maintain a large amount of stored food. Such plants frequently have a strong tendency to resprout after treatment and require repeated applications if they are to be eradicated.

The two chemicals, 2,4-D and 2,4,5-T, kill plants largely by changing the carbohydrates into sugar, thus exhausting the food supply of the plant. A woody plant is lowest in stored food following the early spring growth and this, therefore, seems to be a good time for treating most varieties.

There are exceptions. With poison ivy, for instance, we have gotten better kills by spraying later in the season. In certain areas of the United States, particularly the southwestern part of Texas and Oklahoma, best results in spraying woody plants are obtained during the early spring, usually during May, and the degree of effectiveness diminishes as the summer progresses.

Stop using foliage sprays at least two weeks before the usual frost date in your area.

Success in using the foliage type application depends on the man doing the spraying. **The coverage**

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of the plants is essential. Try to wet all foliage stems and trunk to the ground level with this type spray. This is difficult in dense stands of brush and partly explains why a repeat treatment is sometimes necessary. In most cases it is better to treat fewer plants and cover them thoroughly than to do them more quickly and just barely wet them.

Basal spraying . . .

Although foliage spraying is the most economical approach to the problem and very effective on many species, it does have some shortcomings which are bypassed when the basal spray technique is used.

A basal spray is very good for treating fencerows because it minimizes the drift hazard and is effective on all woody plants including hard-to-kill species such as ash, red maple, hickory, oak, persimmon, osage orange, sour gum, and bass wood. (If there are only a few of these plants present, you may find it more economical to use a foliage spray first to thin out the stand and follow with a basal spray on the plants not killed by this.)

Basal sprays are most frequently used as a follow-up treatment for plants which were not killed by an initial foliage spray or when most of the plants are known to be resistant to foliage sprays. This technique has the added advantage of being effective at any time during the year.

Basal spraying involves using oil, rather than water, as the diluent and carrier for the 2,4-D and 2,4,5-T esters, and applying them to the basal part of the plant, covering all the stems from the ground line up 12 to 15 inches **on all sides.**

Use enough material so that it actually runs down and collects in a puddle at the base of the plants. Keep the spray off the foliage (except small brush).

Studies indicate that the volume of material you apply is the most important single factor—you must apply the material in rather high volume, enough to run to ground line. For this work, mix a gallon of 2,4-D and 2,4,5-T ester combination formulation in 20 gallons of diesel oil, kerosene, or its equivalent. Strained crankcase oil has been used effectively. Use a low-volume sprayer or a knapsack sprayer equipped with low-volume nozzle. As with foliage spraying, **be sure to apply enough material** and cover the basal parts thoroughly. Painting with brush killer does **not** produce satisfactory results.

Apply chemicals to stumps . . .

This involves the same principles as basal treatment except that the top of the plant is removed and only the remaining stump is treated with 2,4-D, 2,4,5-T, or ammonium sulfamate. Stump treatment is a very practical method of preventing regrowth from cut trees, especially if these trees are of inferior species that should be eliminated from a timber crop being grown on the area.

The method is effective on stumps of plants which resprout from the root stem transition zone, but is not as effective on plants which can resprout from dormant buds on lateral rhizomes.

The size of the cut stump is very important in considering use of this method. You will not find it as economical or practical, if the stumps are very numerous or if the majority are under three to four inches in diameter. There will be too many misses and the amount of material will run very high. Stump spraying with diesel oil can be done at any time of the year, either immediately after the trees have been cut or a month later, if weather conditions make it too difficult to spray at the time of cutting.

Successful stump spraying, like foliage or basal spraying, depends on the thoroughness with which the work is done.

As with basal spraying, diesel oil, fuel oil, or similar petroleum solvent is used as the diluent for the chemicals and calls for the use of a knapsack type sprayer.

To make sure that the brush killer is mixed thoroughly with the diesel oil at the recommended dilution it is always best to stir the mixture a few minutes. In applying the mixture to cut stumps, **the material must be sprayed, not painted, on all sides of the stump and top until rundown to the ground level is noticed.** Be sure all sides are sprayed. If the stump has already started to shoot suckers, disregard the sucker growth and concentrate on spraying the stumps thoroughly.

Kill by frilling . . .

The fourth method used to control woody plants is called frilling and is most useful in forest and pasture management where large trees are the problem and it is not objectionable to leave them standing after they have been killed. This method requires making a frill around the trunk, usually at waist height, with a continuous series of vertical axe cuts, leaving the bark attached at the bottom.

A solution of 2,4-D, 2,4,5-T, or ammonium sulfamate is poured into this frill or trough. Ammate is used as dry crystals or a concentrated solution, while 2,4-D and 2,4,5-T are used in the ester and amine forms. Most workers feel that it is most important to apply a continuous supply of the material uniformly around the circumference of the tree.

Buckbrush is controlled successfully by foliage applications of 3 quarts of 2,4-D per acre. For ground application, mix this in 100 gallons of water. All leaves and stems must be sprayed thoroughly to ground line.

For aerial application, apply it in 3 gallons of an oil in water emulsion or the same quantity of diesel oil per acre.

Repeat sprays are necessary to control regrowth from underground plant parts.

Treat prickly ash the same way, using 3 quarts of 2,4,5-T per acre.

You can control post oak, blackjack oak, and other associated brush species with annual applications of herbicides for two to three consecutive years.

Using ground equipment, mix 3 quarts of 2,4,5-T in 100 gallons of water and use as a drenching spray. Late in the season the addition of 10 gallons of diesel oil to the mixture has given good results. Retreat with the same mixture.

For aerial application, mix 3 quarts of 2,4,5-T in 1 gallon of diesel oil and 4 gallons of water or in 5 gallons of oil per acre. Retreat with 2 pounds acid equivalent per acre in the 1 to 4 oil/water mixture or 5 gallons of oil.

For basal sprays, use 16 pounds acid equivalent 2,4-D plus 2,4,5-T or 2,4,5-T alone in 100 gallons of oil. Spray the lower 12 to 18 inches and use enough to cause considerable run-down to ground line. Apply this spray at any season.

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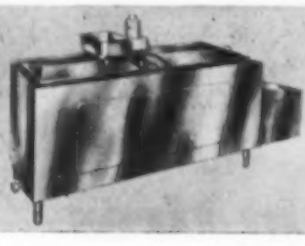


Write for free booklet

Mop-up on brucellosis

In 4 years, more areas have been certified than in previous 20! Here is current picture and a state-by-state report.

IT WAS just a few short years ago when every dairy farmer in the country lived in the constant fear of an abortion storm. Bang's disease, as it was then known, was an ever-present threat to the calf crop and the milk yield.

The year 1934 marked the beginning of a national effort to bring brucellosis under control and stamp it out. In that year, testing throughout the nation revealed that 1 cow in 10 was infected. Because a good vaccine was not then available, a test and slaughter program was used. It worked amazingly well but, obviously, wasn't enough to eradicate the disease.

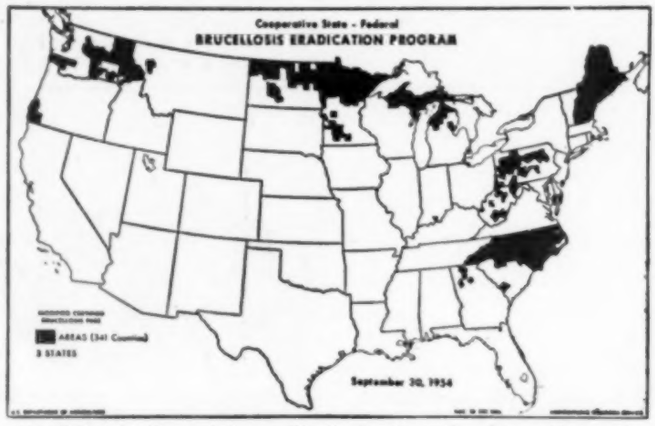
Then, along about 1940, another tool came into use — Strain 19 vaccine. With these two weapons, livestock men did a tremendous job of getting rid of a disease that cost them over $100 million a year.

But during World War II many of the gains previously made were lost. The incidence of the disease doubled. Repeated efforts were made to get the program rolling again. The National Brucellosis Committee was formed. Then, in 1954, Congress appropriated extra funds to finance an accelerated brucellosis eradication effort. At that time only three states—Maine, New Hampshire, and North Carolina—and 341 counties were modified-certified, brucellosis-free areas.

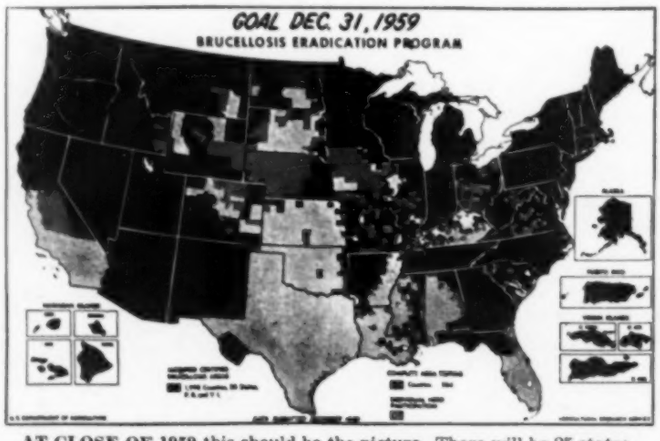
Today, as we go to press, 16 states, Puerto Rico, and the Virgin Islands are modified-certified. The number of counties has increased from 341 to 1,216. In addition, 130 counties showed no infection at the time the last brucellosis test was conducted.

We have not only blood tested more cattle—not quite 30 million in the four-year period, 1951-55, and over 63 million from 1955 through 1958 — but we have reduced the rate of infection from 2.6 per cent of all cattle blood tested during 1954 to 1.3 per cent in late February 1959.

The milk ring test, being used to detect herd infection, deserves a resounding pat on the back for its part in the success of the program, too. Using this test, over 1.7 million herds were checked for *Brucella* infection in 1958 and the



IN 1954 only three states — North Carolina, New Hampshire, and Maine — and 341 counties were modified-certified, brucellosis-free. At this point the eradication program was accelerated through additional funds provided by Congress. Immediately a rapid change took place.



AT CLOSE OF 1959 this should be the picture. There will be 25 states, Puerto Rico, the Virgin Islands, and an additional 1,998 counties modified-certified, brucellosis-free. Also there should be 384 counties under complete area testing. The remainder of the country will be on an individual herd participation basis. The light-shaded areas on map are either short of veterinary personnel or are simply dragging their feet.

number of suspect herds reached a new low of 8.3 per cent.

Vaccination deserves a good chunk of credit for the drop in infection rate since 1954. Obviously, while we could never achieve complete brucellosis eradication through the use of vaccination alone, the fact that the number of calves vaccinated was increased from 27 per cent of the eligible calf crop in 1954 to 42 per cent in 1958 has certainly played a big part in reducing infection.

But where do we stand today? Here is a report, state-by-state:

Certification dates

State	Date certified	Established goals or estimated dates
Alabama		1962
Alaska		Dec. 1959
Arizona		July 1959
Arkansas		Dec. 1960
California		Dec. 1960
Colorado		Dec. 1960
Connecticut	July 26, '57	
Delaware	Jan. 10, '57	
Florida		1961
Georgia		Dec. 1959
Hawaii		1962
Idaho		Dec. 1960
Illinois		Dec. 1960
Indiana		Dec. 1959
Iowa		1965
Kansas		June 1961
Kentucky		Dec. 1961
Louisiana		1962
Maine	July '50	
Maryland		June 1959
Massachusetts	March '59	
Michigan	June 30, '58	
Minnesota	May 31, '57	
Mississippi		Dec. 1961
Missouri		1960
Montana		June 1960
Nebraska		1961
Nevada		June 1959
New Hampshire	August '49	
New Jersey	June 3, '58	
New Mexico	June 25, '58	
New York		Dec. 1959
North Carolina	July '42	
North Dakota		1962
Ohio		June 1960
Oklahoma		1962
Oregon		June 1959
Pennsylvania	March 13, '58	
Puerto Rico	Nov. 25, '57	
Rhode Island	Feb. 21, '58	
South Carolina		Dec. 1960
South Dakota		Dec. 1961
Tennessee		July 1959
Texas		1965
Utah	June 1, '58	
Vermont	Aug. 12, '57	
Virginia		Dec. 1960
Virgin Islands	October '58	
Washington	June 1, '56	
West Virginia		July 1960
Wisconsin	June 6, '56	
Wyoming		Dec. 1959

Note that 12 states, apparently, will not meet the 1960 certification goal which was established by the National Brucellosis Committee some eight or nine years ago. Of these, Kentucky, Mississippi, Nebraska, and North Dakota could get the job done if adequate veterinary personnel were available. Following is a report on the other eight states:

Alabama — Until 1958 was not organized on an approved area basis. This delayed the beginning of certification work to such an extent that a goal prior to 1962 would be unrealistic.

Florida — Permitted adult vaccination until 1958. This resulted in a considerable delay in cleaning up many large herds, thus preventing the early certification of several counties.

Hawaii — Has only recently signed a memorandum of understanding with U.S.D.A. which will permit a cooperative brucellosis eradication program. No goal for certification has been established.

Iowa — Will fail to obtain state certification by 1960 because its legislature has failed to enact adequate enabling legislation.

Kansas — Has its progress delayed because of adult vaccination, too. Program has been retarded because of a lack of co-ordinated effort to start complete area work.

Louisiana — Showed considerable promise in cleanup but has lacked financial support to reduce the relatively high infection rate to certification level by 1960. Emphasis needed on vaccination.

Oklahoma — Will not make it by 1960 because of an apparent lack of an adequate information program, acquainting owners with the benefits from eradication.

Texas — Is a long way from certification but strong forces are building up within the state to prevent its being a tag-ender.

How much is this cleanup campaign costing the federal and state governments? At the present time, the federal government is spending a little over $20 million a year and the state governments about $17 million.

What is worrying many disease control people now is a proposed cut in the budget to $15.5 million by the U.S. Department of Agriculture. If this cut is approved by Congress, it is expected that Alabama, Hawaii, Kansas, Louisiana, Nebraska, and Oklahoma will all be delayed at least a year in attaining certification.

Dr. C. K. Mingle, in charge of the U.S. brucellosis eradication effort, believes that brucellosis can be eradicated completely, just as we have eradicated foot-and-mouth disease, tick fever, and a number of other diseases. Mingle points out, "At the end of December 1958 there were 130 counties in the United States that were completely free of infection at the time of the last qualifying test. The fact that this has been accomplished within the framework of the present program, certainly justifies the belief the disease can be eliminated from every county in the United States with the tools now in use."

But when can we expect complete eradication? Mingle says, "The speed with which final centers of infection are eliminated will depend upon the effort that is put into the program. However, if the industry continues at its present level of progress in reducing infection, bovine brucellosis can be eradicated from the United States by the end of 1969."

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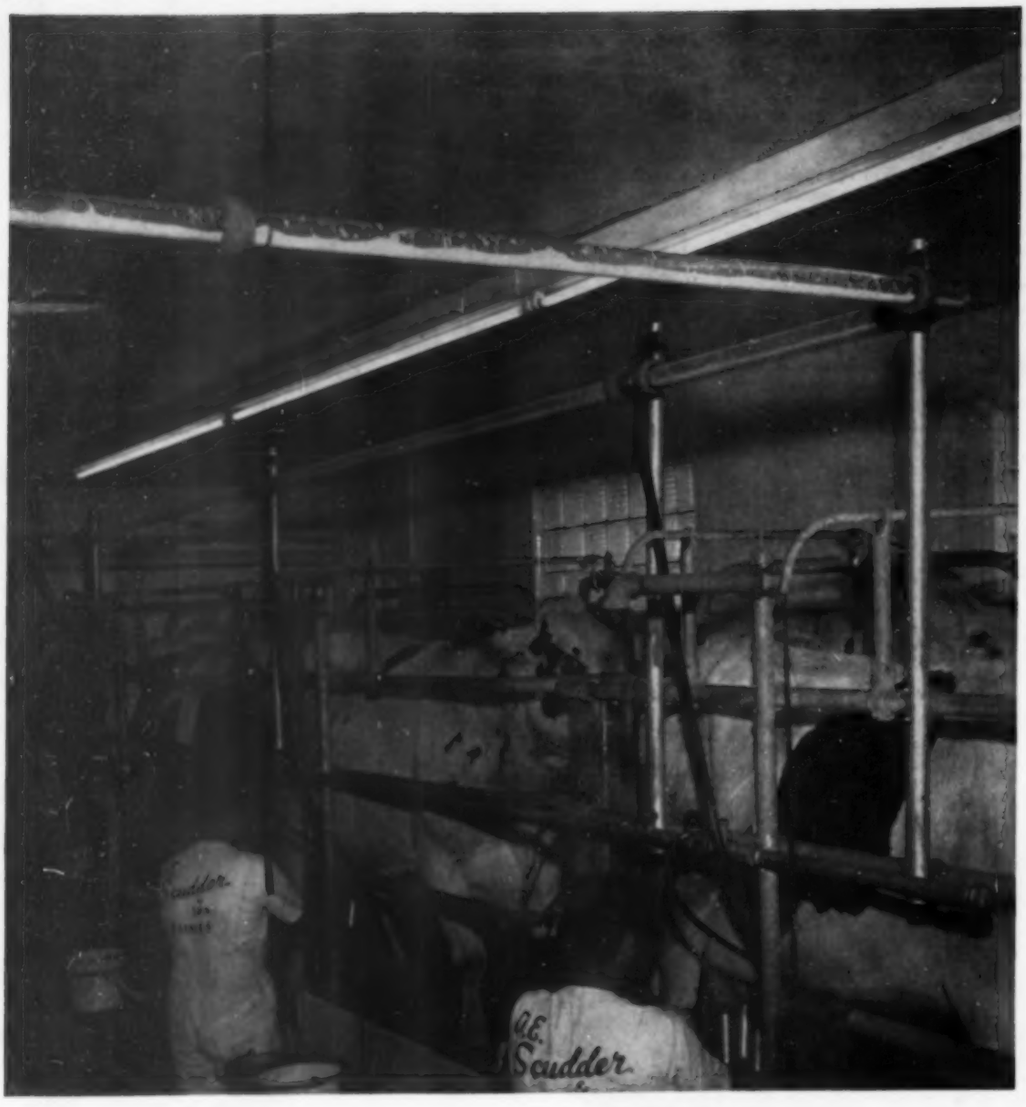

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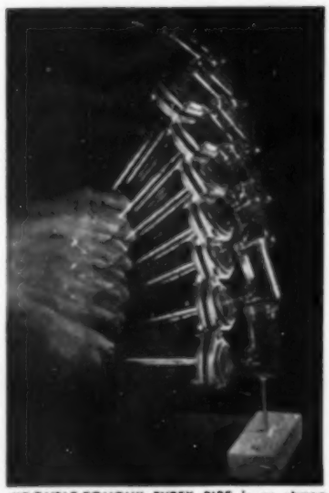


"DOUBLE-TOUGH" PYREX PIPE is so strong you can drive nails with it. Dairymen using Pyrex pipelines report that breakage is no problem.

MILK PURITY-PROTECTED WITH PYREX® GLASS PIPE

THE SIGN OF QUALITY... it can help *you*. When you put in your pipeline, make sure it's one that will never grow old. Get PYREX brand pipe.

CORNING GLASS WORKS, CORNING, N. Y.

CORNING MEANS RESEARCH IN GLASS

TO REDUCE LABOR requirements careful planning is needed in yard arrangement such as was done here on the Simpson Farm in Michigan.

Herringbone system

(Continued from page 547)

maximum numbers he will be milking in the future.

Robert Denham met such a situation by building his milking room large enough for six stalls on each side but installed only four stalls on each side and used four milker units. Denham has been milking 40 cows since the first of January when he started operating in his herringbone system. He milks cows at the rate of 40 per hour. "I never knew milking could be so easy," was Bob's answer to how he liked his new milking system.

A barn fire forced Bob to build a completely new milking parlor, loose-housing system, and feed storage and handling system. He spent $25,000 in making this change. The system was built for a 100-cow operation. He expects to use five or six milker units when he reaches his full capacity.

Bill Meinholz of Cross Plains, Wis., also built a herringbone milking system large enough for a 100-cow operation. He has been operating his system for a year and milks 70 cows in one hour and 20 minutes using six units. This is an average of 52 cows per hour.

Meinholz has eight stalls on each side but so far has been using only six stalls and six milker units. By next fall, he expects to operate at full capacity, using 16 stalls and eight milker units. With the help of a hired man, he should have no difficulty in milking 100 cows in 1¼ to 1½ hours time.

Systems for smaller herds . . .

Dairymen expecting to milk no more than 50 cows will find several sizes and types of milking systems to choose from. Investments in the building, stalls, feeders and complete milking system, but not including the bulk tank and other milk room equipment, are shown in table on page 547.

The lowest cost systems include the 3 U and 3-in-line side-opening parlors, double 3 walk-through parlors and the six on one side herringbone system. Investments in these systems range from $5,400 to $5,800. The investment in a double 4 herringbone would be about $6,600. These investment figures are averages for several brands, hence, costs to individual dairymen may be more or less.

With one man doing the milking, it would take one hour or less to milk 40 cows using a double 4 herringbone system. The double 3 walk-through would be the next most efficient system, requiring

COMPLETE COST of the building and all equipment in Ray Teschler's double 6 herringbone milking set-up amounted to $10,900.

eight to ten minutes more time than the double 4 herringbone. The single 6 herringbone and the 3 U side-opening parlors, each with three milker units would take 20 minutes more time than the double 4 herringbone. One man could milk the 40 cows in about 100 minutes in a 3-in-line side-opening parlor.

A few dairymen have built a single 4 or a single 6 herringbone system with the idea of adding the other side of the building, the concrete, and the other four or six stalls and feeders when herd size is increased. Much of the benefit of the herringbone milking system is lost when only one side is used since machines are idle when one batch of cows replaces those going out. The total cost of the building will be considerably higher when the construction is completed in two stages.

For how small a herd can a dairyman justify the construction of a herringbone milking system? John Van Henert of Freemont, Mich., built a double 4 herringbone system for his 26 Holsteins. He expects to milk no more than 35 cows but places great emphasis on high production per cow.

Van Henert feels that a herd of 35 high-producing cows is large enough to pay off the new investment and still leave a fair return to the operator. The annual cost of owning and operating a double 4 herringbone system is only about $100 to $130 more than for a more conventional milking parlor system.

George Lininger of Springport, Mich., milks 38 cows in his double 3 walk-through system. We have timed his milking operation several times and he has averaged 45 cows per hour. This is comparable to 55 cows milked per hour in a double 6 herringbone when cows are at peak production and top operators do the milking.

George is not only a top milker, but also a good plowman. During 1958, he was champion plowman at the national plowing contest.

Systems for large herds . . .

Efficiency in milking becomes especially important for the larger dairy herds. Whether the milking crew includes the operator and his family or some combination of farm and hired labor, it is important that this labor is used effectively.

Fatigue sets in as soon as the milking job starts. It is certain that after a person has milked continuously for a specified time that he is likely to do a less effective job of milking. Several of the Michigan dairymen interviewed indicated that their ability to do a good job of milking declined after they had milked continuously for more than 1½ to 2 hours.

The average dairyman who expects one man to milk 80 or more cows will find the side-opening parlors too slow. Normally, it would take three hours or more twice daily for one good milker to handle 80 to 90 cows. With a double 5 herringbone, he could milk these cows in 1½ to 2 hours twice daily.

The dairy farmer who expects to use two men to milk, needs to design a system that is flexible enough to operate on weekends and other times when the milking force may be reduced. The dairyman using two men to milk has several alternatives to choose from.

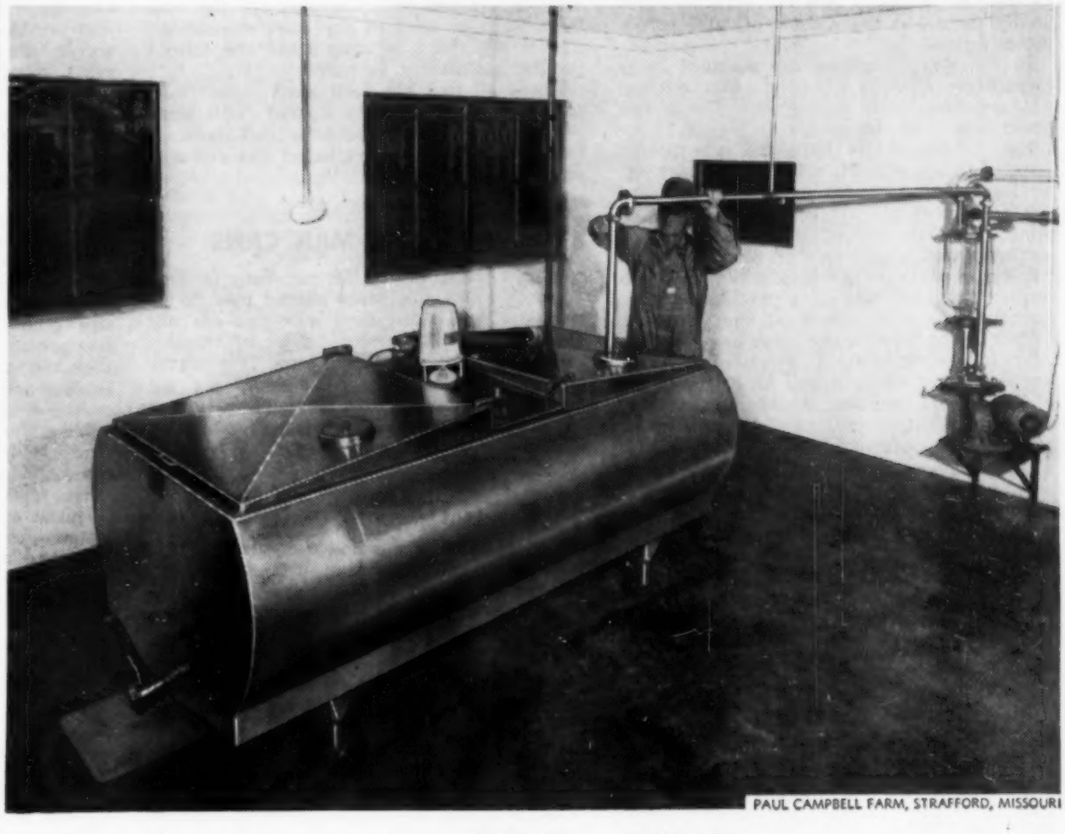
1. He could build a separate milking room for each milker with a milk room serving both rooms. Investment not including the bulk tank or milk room equipment would total $12,600, using two double 5 herringbone systems.

2. He could use one milking room and plan for each milker to handle his cows in shifts. Total investment would be about $7,800, using one double 5 herringbone.

The first two systems would be best adapted to farms where both milkers are hired. There is a tendency for a considerable amount of visiting when two men operate in the same pit.

3. He could build a double 8 or a double 10 herringbone building, using two milkers in the same pit. This system would be a good choice where the operator works with another member of the family or a hired milker. The total investment for a double 8 herringbone system would be approximately $9,700. **THE END**

"Don't think of it as a cow having kicked you; think of it as a conversation piece."



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Add the extra profits you get by installing a bulk milk tank to the saving you make by choosing an EM-BEE. Realistic initial cost, economical operation, and long, useful life all add up to real savings.

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EM-BEE

PM PAUL MUELLER COMPANY • SPRINGFIELD, MISSOURI

EDITORIAL COMMENT

WE'RE PAID IN MILK

MUCH oratory has been spilled on behalf of the "family farm." All too often, we fear, the family farm has been portrayed as one with small acreage, a few cows, hogs, and chickens. Many people have painted a picture of conflict between this so-called family farm and the spector of huge corporation farms.

In the dairy business the so-called large corporation farm is a rarity. And we see, less and less, small farms with just a few cows, hogs, and chickens.

But in-between we have the true family farm of today, which is a highly efficient and productive business. Here a production of 200,000 pounds of milk per man is commonplace. We have visited many farms where one man was taking care of 30 to 35 cows, sometimes without any help but, more commonly, with the help of a teen-age son or the part-time help of a hired man.

This is the true family farm today in this stage of our agricultural development. These are the farms which should be in the minds of farm and political leadership as they weigh various proposals to help agriculture weather these days of the cost-price squeeze.

We have seen many farms which prove to any reasonable and intelligent person that you don't have to be "big" to succeed. But every man must produce. This is true in agriculture as it is true in any part of our economic life. It is the production per man. And the sooner we begin using this benchmark of productiveness the sooner we will face up to today's realities.

BULK TANKS MAY HELP

FLUID milk markets, which now have a relatively favorable Class I usage, may find future protection in bulk milk tanks. In one market we visited recently the entire fluid supply is handled in bulk tanks and tankers.

Surrounded by corn, hogs, and beef, the dairymen are worried that in late 1959 and particularly in 1960, when meat prices drop, pressure will be on their market from a swelling milk supply. The required investment in a bulk tank, however, is expected to act as a deterrent to in-and-outers moving into the dairy business as they have in the past.

MAKING THE SOIL BANK WORK

WE ARE pleased to learn that the National Agricultural Advisory Commission has recommended that the conservation reserve of the Soil Bank be expanded to take up to 40 million acres out of crop production. It is our understanding that some 23 million acres already have been signed up in the conservation reserve this year.

We don't know how many acres might properly be classified as diverted from the production of the basic agricultural commodities. Two or three years ago we heard many figures, ranging from 30 million to 40 million acres of land which were in surplus insofar as our effective domestic needs were concerned.

It has always seemed to be illogical to have a Soil Bank program unless these surplus acres could actually be retired from production and thereby bring a balance between supply and demand. So long as surpluses are produced, whether they be produced on 1 million acres or 30 million acres, there is a depressant to prices in the market place.

We have long felt that the conservation reserve was a more effective means of bringing supply and demand into balance than was the old acreage reserve. Certainly if the Soil Bank is to be used in any form whatsoever, it should be used to bring about the desired results, not simply go halfway.

About all that has been accomplished thus far is a reduction of the surplus under what it would have been without the Soil Bank. It has not, however, strengthened the domestic market as such.

KEEP THOSE MILK CANS

AFTER the winter of '59, not many farmers with bulk milk tanks should need to be reminded that a few good milk cans are still a worth-while investment. A lot of valuable milk was poured on the snow last winter when the bulk milk truck could not get through snowbound country roads and there were no milk cans to provide a cushion of storage during the emergency.

MARGIN FOR ERROR NARROWS

IN THE seven-year-period from 1951 to 1957 major changes took place on farms throughout the country. One of the most interesting summaries of the impact of these changes was recently released by Illinois farm economists.

On 210 farms, gross income was maintained by farming more acres and shifting to high cash value crops and livestock with low labor requirements. Here is the summary picture:

	1951	1957
Value of farm production	$20,459	$20,242
Total nonfeed costs	14,793	19,709
Management returns	5,666	533

The management return is the amount of money left over for management alone. Interest on land, buildings, and operating capital was deducted. In addition, a labor allowance was deducted, $200 per month for northern Illinois farms and $185 per month for southern Illinois farms, before the management return was calculated.

Obviously, there was plenty of room for management errors in 1951 but little or none left for management errors in 1957. The importance of a sharp pencil was emphasized by D. F. Wilken, who made the study, when he said, "Good planning and good farm records are important if farmers are to get a satisfactory return for their efforts in farming today."

In 1913, W. D. Hoard said:

A very large proportion of the farmers of the country are too well satisfied with what they already know of farming. When they see their own deficiences, their lack of right understanding of better methods, they will answer to that eyesight and not till then. Right there is where the main trouble lies. It will take a long time to leaven the whole lump but the leavening process is going on. The head of the column must always wait for the rear to catch up, for a break in the column is dangerous.

MORE RELIABLE SIRE PROOFS

DAIRYMEN now have 1,600,000 cows being tested for milk production. Last year they invested over $8 million in this extremely important herd improvement service.

But the testing of the individual cow for feeding, management, and culling information provides only part of the benefits which accrue through our D.H.I.A. program. Of great importance is the use of these records for proving dairy sires.

As each record on a cow is completed, a report is sent to the state D.H.I.A. office where records are checked and forwarded to U.S.D.A.'s dairy cattle research branch. Here calculations are made to prove sires, quickly and accurately, so that the best sires may be discovered and used to greatest possible benefit during their productive lives.

Last fall we reported in these columns that an estimated 30 to 40 per cent of today's sire proofs may be misleading. Too often the proofs have measured the man rather than the sire. In other words, the quality of feeding and management had more influence on the daughters' records than did the transmitting ability of the sire. The effort currently being made is to try to eliminate the environmental influences.

We reported how electronic machines can calculate and print reliable sire proofs almost instantaneously. They can do calculations and come up with reports which are practically impossible to do with manual labor. To prove this statement, it is only necessary to report that a new electronic machine now available can make over 6,000,000 digit calculations per minute!

Because this equipment is available in the department, the service to dairying can be provided at a very low cost. The equipment cannot be used, however, because the Department of Agriculture has not asked the Congress for the necessary funds to transfer the present records over to the machines.

The department has not requested these funds in spite of the fact that its own Dairy Research Advisory Committee, for the last three or four years, has given first priority recommendation to expanding and improving the D.H.I.A. activity. In addition, such organizations as the American Dairy Science Association, the National Milk Producers Federation, the National Association of Artificial Breeders, and many other groups have requested U.S.D.A. to provide more adequate support for this work. It is difficult to understand how greater evidence could be accumulated to justify the merit of the change to the use of these highly efficient machines.

To convert to electronic equipment the first year will cost $150,000. Thereafter, the cost will be somewhat less. If this sire proving work were done with present equipment and manually, the cost would be at least $275,000 annually and the proofs would still not be reliable because it would be physically impossible for people to do manually what the machines can do so quickly. Because the electronic equipment is already available through the Commodity Stabilization Service, the per-hour cost of using this equipment would be less than one-half the normal per-hour cost to the dairy research branch.

We hope the Congress will use better judgment in approving a U.S.D.A. budget than the department did in preparing it and submitting it to Congress.

Questions from Our Readers

All-season motor oil

What are the advantages of "all-season" motor oils?

Minnesota H. M. K.

"All-season" oils, also known as multi-viscosity have the low temperature characteristics of a "lightweight" oil, and the high temperature characteristics of a "heavyweight" oil.

For example, a 10W30 oil has the viscosity of a 10W oil, which makes for easier starting on cold winter mornings. At the same time, it has the high temperature viscosity of 30 oil to more adequately protect your engine after it is warmed up to normal operating temperatures.

For summer operations it offers no particular advantage over a straight viscosity oil. The straight viscosity oil will be somewhat lower in price.

—Melvin E. Long

How to build

I am building a wood frame building and intend to sheath it on the inside and outside with either shiplap or rough lumber. Then I intend to put a vapor barrier paper on the inside and use matched lumber up and down. On the outside I want to use thirty weight asphalt and matched lumber up and down.

I have been told that I should use lap siding on the outside so this wall won't be completely tight as it will rot if it is tight.

Minnesota T. S. W.

The basic principle in constructing an insulated wall for any building that is to be kept warm inside is to have the inside wall tighter than the outside wall.

Use a vapor barrier on the inside as you suggest, and building paper or roofers felt on the outside to make the wall wind tight. The type of wood siding that you use will have little effect on the passage of moisture. There is a certain amount of air movement through any wood wall.

This air movement is necessary so that any internal moisture which penetrates the vapor barrier can be carried out.

—D. W. Bates

Adding weight to tractor

Which way of adding weight to a tractor is better, fluid in the tires or cast iron wheel weights?

Missouri R. R. D.

Either method increases traction equally well. The choice is largely a matter of convenience or personal preference.

Fluid occupies no extra space on the tractor and is out of sight. However, because of the equipment needed for filling, it is generally regarded as a permanent addition to the tractor.

On the other hand, cast iron wheel weights can be added or removed as requirements change. However, they do involve a certain amount of inconvenience. On many modern, high-powered, lightweight tractors, it will be necessary to use both types.

—Melvin E. Long

PTO dynamometer

The local dealer has a new test machine called a PTO dynamometer. Is this of any value in checking my tractor or is it just a gadget to sell more repair work?

Ohio O. W. A.

Properly used, the PTO dynamometer is a valuable service tool. It will enable your dealer to do a better job of adjusting your tractor engine. It provides a means of applying a known load, and at the same time measuring the fuel consumption.

The various engine adjustments can then be set to give best performance under load, just as you will be using the tractor.

—Melvin E. Long

ED . . . ***and EMMA***

"But why not wait 'til we HAVE to go for supplies . . .?"

"It's not the extra trip to town; it's to cut down on the extra shaves!"

FLIES COST YOU PLENTY!

Flies bother, worry, and irritate. They spread filth and disease. They keep cows from getting full value out of pasture. They cut milk production. All this costs money! By keeping flies under control on your place, you're helping yourself and your community to better living . . . more profitable dairying.

PURINA DAIRY SPRAY AND FLY BAIT

They'll kill flies for you this summer!

Purina Dairy Spray. This is our cow spray, ready to use just as it comes from the bottle. Contains 100% active ingredients, including MGK repellent. If you milk more than 30 cows, you can save money on Purina's new 30-gallon drum. Also available in quarts, gallons, and 5-gallon cans. Have your season's supply delivered along with your next order of Purina Dairy Chows.

Purina Fly Bait. To keep down the fly population around buildings, scatter this dry phosphate-type bait. Put it where flies will find it . . . near doors and windows, in feed rooms, on ledges and sills. Sprinkle it thin. Freshen up with new sprinklings every week or so. A single 25-lb. bag lasts all season on the average farm.

Elbow Grease. We don't sell this product, but recommend it highly for good fly control. Clean manure pits, drain silos, clip weeds. Eliminate all other fly breeding spots. Then use the best insecticides available.

YOU CAN DEPEND ON PURINA QUALITY HEALTH AIDS

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"I CHOSE A ZERO BULK TANK FOR ITS AUTOMATIC WASHING AND MANY OTHER ADVANTAGES"

—SAYS JEROME COPLEY OF WELLSBORO, PA.

"I believe the future for a dairyman is very bright for those who keep good cows, feed plenty of first quality forage, use labor-saving machinery and keep accurate books. To follow the above rules, I have purchased a ZERO tank.

"I chose a ZERO for these reasons: First, a vacuum tank for its many advantages. Automatic Washing, suction to draw the milk into the tank. Its strength, economy and minimum space required. ZERO is the tank of and for the future. I recommend it." — Jerome Copley; Wellsboro. Pa.

ZERO *automation* is an exciting, new labor-saving system that's attracting international attention. It's saving dairy farmers countless hours of tedious carrying, lifting and clean-up. Write for full information about the ZERO T-20 VACUUM AUTOMATIC BULK MILK COOLER — and name of your nearest ZERO dealer — today!

Zero — THE TANK WITH A FUTURE — FOR EVERY DAIRYMAN!

Note that the basic ZERO T-20 COOLER is engineered so you can easily add labor-saving equipment as you enlarge your herd and need it — according to these four methods:

1. YOU CAN START WITH A ZERO AS A POUR-IN. Ideal for small herd. Round design enables you to stand close to strainer — easing lift and lowering pouring height.

2. USE WITH ZERO SUPER-STRAINER. Does away with lifting of heavy pails. Uses *vacuum* — Nature's own way — like sucking milk through a straw. Draws pail of milk into cooler in approximately 30 seconds. Saves cost of pour-in strainer.

3. USE ZERO COW-TO-COOLER. Milk flows direct from cow to cooler, under vacuum. No need to buy and wash extra equipment with a ZERO T-20 Vacuum Tank.

4. USE WITH DIRECT MILKING SYSTEM AND SPATTER-SPRAY AUTOMATIC WASHER. This is ZERO *automation* described at right.

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Tells How to Make More Money with Milk

Gives full information about ZERO T-20 BULK MILK COOLERS. Includes dimensions and sizes of different size ZERO Coolers. Shows how easy it is to slide and fit the round ZERO tank into your milk house. Write for this FREE Book today!

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Zero AUTOMATIC BULK MILK COOLER
T-20 VACUUM — Nature's Own Way
— with SPATTER-SPRAY AUTOMATIC WASHER

THERE'S A SIZE Zero TO FIT ANY NEED!

NOW! — A DIRECT MILKING SYSTEM AT MODEST COST... for STANCHION AND BASEMENT BARN DAIRYMEN!

The new ZERO STEP-SAVER, at left, is a *low-cost vacuum-operated, farm bulk milk cooler accessory -- that brings modern ZERO automation to the stanchion and basement barn.* Set up in the stanchion or basement barn -- and connected by a vacuum milker line to a ZERO T-20 VACUUM AUTOMATIC BULK MILK COOLER, installed in the milkhouse --- this ZERO STEP-SAVER enables the stanchion or basement barn dairyman to have a modern, time-saving, labor-saving, direct milking system -- at modest cost. The ZERO *vacuum* tank makes this simple, low-cost method possible. The STEP-SAVER has a low, 21 in. pouring height. Made of stainless steel to last a lifetime. Disassembles in less than minute for easy clean-up. Write for FREE Literature!

Zero VACUUM-OPERATED STEP-SAVER

ORGANIC FERTILIZER improves soil tilth; adds nitrogen, phosphorus, and potassium. Most soils are in need of organic material.

Organic vs. inorganic fertilizers

Both are good. But a farmer cannot cover large acreages with compost so he must make use of the commercial fertilizers.

by Emil Truog

INORGANIC FERTILIZER should be added according to soil tests.

WILL we get better crops and more nutritious food and do a better job of conserving our soils if we fertilize with organic composts rather than commercial fertilizers? That is a question some are asking. What is the answer?

Many careful experiments have demonstrated that the main benefit derived from applying organic materials to soils, such as animal and green manures, comes from the fertility elements (nitrogen, phosphorous, potassium, and others) which they carry. Undoubtedly, the same holds true for organic composts which consist of rotted organic materials like straw, leaves, grass, or even manure itself.

These same experiments also have shown that the fertility elements in commercial fertilizers are fully as available to crops as those in organic materials, and often more so.

Some hold that the fertility elements in commercial fertilizers having been processed through the use of strong acids like sulfuric and nitric acids, or consisting of inorganic salts like potassium chloride, are corrosive or toxic to soil bacteria and earthworms. It also has been said they give rise to crops of inferior food value, causing diseases in animals and humans.

Not harmful . . .

There is absolutely no scientific evidence to support this contention. It is of interest to note that Holland, which long led in amount of commercial fertilizer used per acre, also at the same time led in average longevity of its people.

Experiments have shown that the application of commercial fertilizers in amounts commonly recommended tends to increase the numbers of bacteria and earthworms in soils by enlarging crop residue and resulting supply of organic matter.

When organic matter rots in the soil through the action of bacteria, its nitrogen is changed to nitric acid, its sulfur to sulfuric acid, and so on. These acids then combine with elements in the soil like calcium to form salts, which serve as nutrients for plants.

There **absolutely is no difference** in the nature of the nitric and sulfuric acids formed in the soil from organic matter through the action of bacteria and the nature of these same acids as used in a fertilizer factory.

The potash fertilizer called muriate of potash or potassium chloride is a chemical substance which is very similar in its properties to common salt (sodium chloride) which we add to our food. Thus, we see that the form in which plants absorb their nutrients is the same whether they are originally supplied as organic material, such as compost, or commercial fertilizer.

Both improve soil . . .

It is true that the use of composts adds to the supply of organic matter in soils, and in this way promotes a better physical condition of soils. That is, it makes for better aeration and workability of soils and improved water relationships. This use may be important, especially with the city gardener who has no supply of animal manure or cannot conveniently practice green manuring. For him, the making of compost from leaves, grass, and other waste organic materials for application to his small plot of ground is to be recommended.

However, in general, the farmer cannot cover his large acreages with compost. Sufficient amounts of leaves and other organic materials just do not exist on his farm for this. Furthermore, for him the labor cost of doing this would usually be prohibitive, even if the needed materials could be found. He can very profitably use what straw and the like are at hand for bedding and then apply to his land what animal manure is produced.

For the additional amounts of organic matter needed, the farmer must resort to green manuring and the use of the residues left by his crops in the form of roots and stubble. By using lime and commercial fertilizer as needed, and practicing a good rotation, which includes legumes, adequate additional amounts of organic matter can be supplied in this way as a by-product of his regular cropping system.

The author is emeritus professor of soils, University of Wisconsin.

Wisconsin 4-H'ers national Holstein champions

Mary Ann Frautschy

DuWayne Kutz

Two veteran 4-H members from Wisconsin have been named national junior Holstein champions by the Holstein-Friesian Association of America.

Mary Ann Frautschy, Monroe, is the national junior champion Holstein girl; DuWayne Kutz, Jefferson, is the national junior champion Holstein boy.

Mary Ann, 20-year-old daughter of Mr. and Mrs. Arleigh Frautschy, has developed a herd of 13 registered Holsteins during her 10 years of project work. There were only grade Holsteins on the farm when she was 10 years old. That year she talked a neighbor into letting her raise a registered bull calf on shares. With her half of the proceeds, she bought a registered Holstein heifer which developed into an outstanding producer and eventually became the foundation brood cow of the present herd.

During her 4-H career, she established outstanding records as a dairy cattle judge and in 4-H demonstrations. She also found time for projects in gardening, steer feeding, foods and nutrition, clothing, home furnishings, and junior leadership.

Since graduating from Monroe High School, Mary Ann has been employed as a secretary. Now in her sixth year as junior leader, she lives on the home farm and assumes responsibility for all "paper work" connected with the management of the entire Frautschy herd.

DuWayne, son of Mr. and Mrs. Albert Kutz, has spent 11 years in club work. He was equally outstanding in F.F.A. He started his Holstein career with a heifer calf earned by helping with chores on the family's 140-acre farm. He now farms in partnership with his father, owning a half interest in a herd of 36 registered Holsteins.

Equally proficient as a dairy cattle judge, he was high scoring individual in the 1954 Wisconsin 4-H judging contest. Later that year he placed sixth in national competition at Waterloo, Iowa. In 1955, one of his Holsteins was junior All-American heifer calf and he has had three others nominated for similar honors.

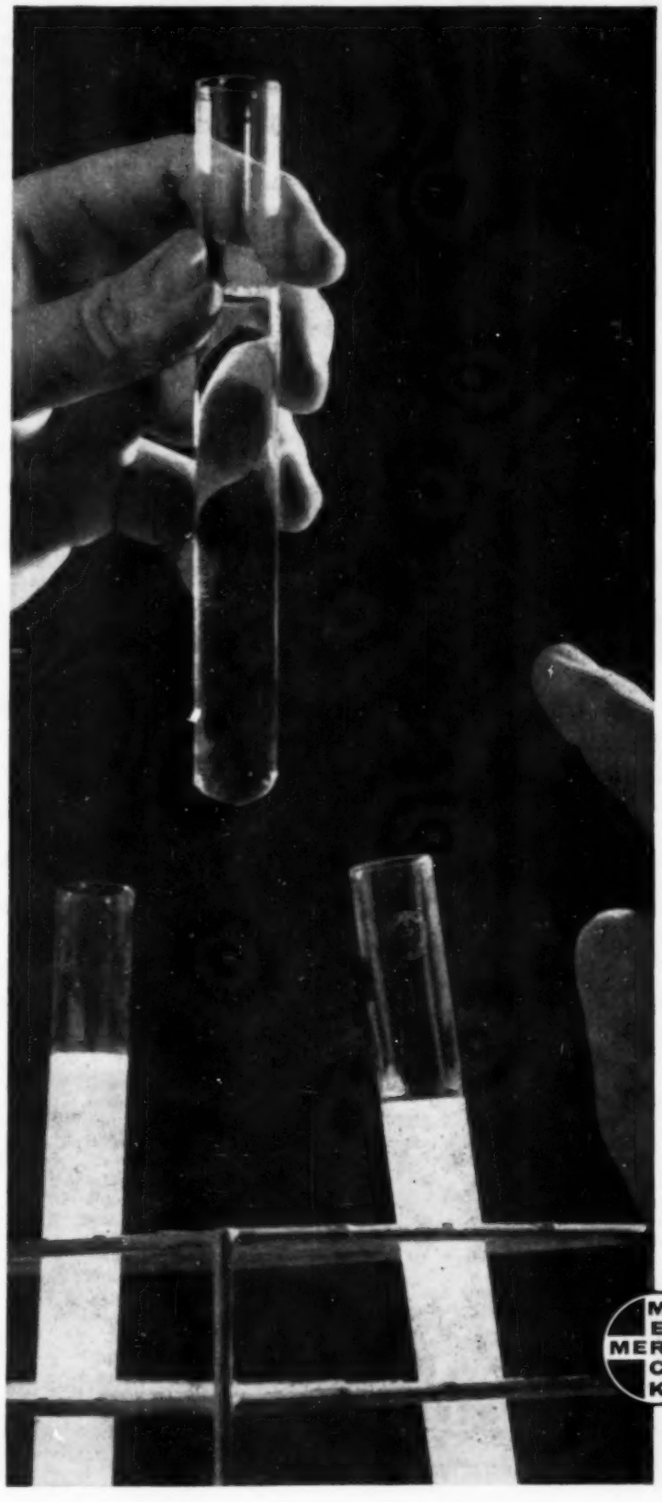
Besides his registered Holsteins, his projects included forage production, strip grazing, soil conservation, fly control, and clean milk production.

Kutz attended the University of Wisconsin's one-year agricultural short course on a scholarship from a local bank. He is now in his sixth year as junior leader of the Hebron 4-H Club. A past president of the county's older youth group, he holds the distinction of being the first junior member elected to the board of directors of the Jefferson County Holstein Breeders Organization.

Fred: Say, what is a grudge?

Ned: Isn't that what we used to keep our car in?

NEW MASTITIS OINTMENT EMPLOYS REMARKABLE NEW DRUG TO BOOST ANTIBIOTIC EFFICACY



Here's the big reason why BOVITRIN*—the *new* mastitis ointment from Merck—is in a class by itself! Because BOVITRIN contains a drug *2,000 times more soluble than similar ingredients in other mastitis products.*

BOVITRIN speedily diffuses throughout the udder. By reducing udder inflammation, effective antibiotic action is boosted. BOVITRIN reduces swelling and the formation of scar tissue ...helps ailing quarters back to full production faster.

Yes... it's the solubility of BOVITRIN that helps carry these powerful antibiotics to even remote pockets of infection!

Penicillin—highly effective against the organisms which are responsible for up to 95% of outbreaks.

Dihydrostreptomycin—active against other bacteria, including the troublesome *E. coli.*

Neomycin—works to control pathogens usually resistant to other antibiotics.

BOVITRIN is easy-to-use and economical. You can buy 5 Gm. single-dose tubes individually, or in the money-saving 24 pack.

***Remember**—Prevention is still your best defense against mastitis*

BOVITRIN is now your best weapon to control it!

MERCK

BOVITRIN

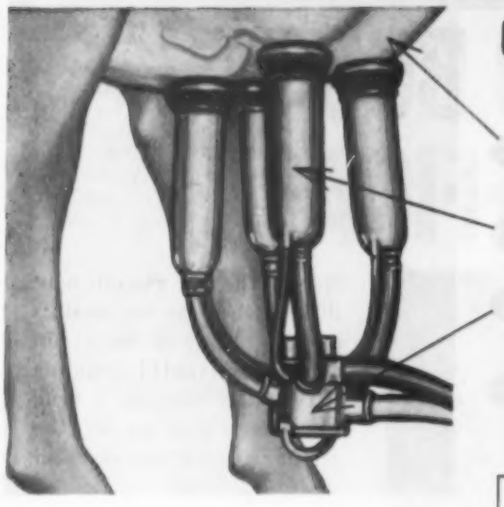
MASTITIS OINTMENT

with THE MERCK MARGIN OF SURETY

© MERCK & CO., INC. *TRADEMARK

CRACKDOWN ON MASTITIS HERE! Now

This Is Everybody's Problem...It Affects The



The Mastitis Situation Is Getting Worse

The fact that mastitis is costing the dairymen of this country $250,000,000 a year in loss of milk and loss of cows has been widely publicized. It is a serious situation and one authority recently said, "It is getting worse." Sanitarians and milk buyers are seriously concerned since mastitis is affecting quality of milk. Thus it becomes a consumer as well as a production problem and concerns everyone.

California Authorities Are Doing Something About The Mastitis Problem

At the University of California, a team headed by Dr. O. U. Schalm with Daniel O. Noorlander, milking machine authority, Dr. Allen C. Pier and Dave Gray, bacteriologists, and Dr. Kenneth A. McKay, Extension Dairyman, have developed an effective program for combating mastitis which has been reported in a series of articles starting in the March 10th issue of Hoard's Dairyman, entitled—"Mastitis Can Be Licked Now."

The second point in their program as reported in Hoard's states: "Improperly-designed or malfunctioning milking machines can cause an outbreak of mastitis that no antibiotic can cure for good... faulty milking machines or careless, uninformed machine operators can injure delicate tissue in an animal's teats, thus paving the way for mastitis-causing germs." This confirms the belief that Chore-Boy has had for many years.

Original CHORE-BOY Design Based on Low Vacuum and Simplicity of Operation

The original Chore-Boy design took into consideration the delicate nature of a cow's teats and udder. Features were built into the milker which would subject these sensitive organs to the least strain and insure simplicity and reliability of operation.

CHORE-BOY'S Built-In Safeguards Against Mastitis

LOW-VACUUM

Places less strain on inside of teats and udder — less opportunity for mastitis-causing bacteria to lodge.

TEAT CUPS HANG STRAIGHT

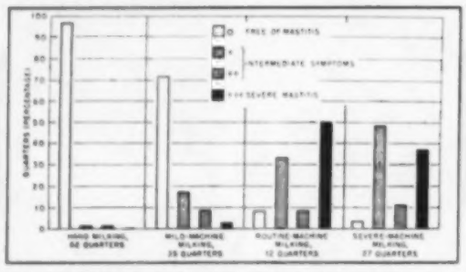
Do not crimp teats and restrict milk flow.

NO CRAWLING OF TEAT CUPS

Teat cup assembly has sufficient weight and balance to prevent crawling. Fits teats properly.

DOUBLE MASTER PULSATOR

CHORE-BOY Master Pulsator with only 3 moving parts is easy to take apart and service. It operates up to 6 milker units (3 on each side) and provides uniform milking.



U.S.D.A. Bulletin 992 on The Relationship of Machine Milking to the Incidence and Severity of Mastitis

Strong support of Chore-Boy's position that lower vacuum is better for udder health comes from the U. S. Dept. of Agriculture in Bulletin 992 published in August, 1949. A government-owned herd at Beltsville, Maryland, was milked (1) by hand (2) mild vacuum (3) routine-machine milking (high vacuum) and (4) severe-machine milking. After a complete lactation period the results were summarized in the chart above and the following is quoted from the Bulletin: "The data shows that the percentage of quarters that were free of symptoms was largest on hand milking, slightly less on mild-machine milking, and less than 10 percent on routine and on severe-machine milking. The percentage of quarters that were mildly mastitic (x) increased on machine milking uniformly with the increase in the amount of vacuum and the length of time the vacuum was applied. Likewise, the proportion of quarters that developed severe mastitis (xxx) on hand milking was zero, on mild-machine milking less than 3 percent, on routine machine milking 50 percent, and on severe, 37 percent."

Dr. Udall of Cornell University States His Experience With High and Low Vacuum

Dr. D. H. Udall, of the New York State Veterinary College of Cornell University, wrote an article which appeared in the April 1947 issue of the Cornell Veterinarian as follows: On a 160 cow herd, under his care, milked with Machine A (high vacuum) mastitis infection increased, and a condition called "teat erosion" developed, with teats becoming club-shaped, red, with ends of teats or sphincter muscles inverted or pulled out. Then Machine B (low vacuum) was used to milk half the herd. There was immediate improvement. Then the entire herd was milked with Machine B (low-vacuum) and there was continued improvement. He said, "The results indicate that in the herd it was not possible with available personnel to obtain satisfactory results with type A machine and that with no change in personnel, satisfactory operation was obtained with type B Machine." Note that Dr. Udall said "available personnel." A good operator can get good results with a high vacuum machine if it is in proper operating condition. It is Chore-Boy's belief that such operators are the exception, rather than the rule, and that a machine must be able to function properly with all kinds of operators.

After 13 Years of Use, Vermont Dairyman Reports On CHORE-BOY Low-Vacuum Milking

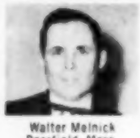
Carey H. Howlett of Bridgeport, Vermont, has used a Chore-Boy Milker for 13 years — 9 years with pail milkers and the last 4 with a pipeline system. At present, he is milking 88 pure-bred Holsteins. His butterfat average for the past 3 years is 543 and around 14,000 lbs. of milk per cow. He says, "I like low-vacuum because of its safety and decreased danger of udder injury. The ease, simplicity and effectiveness of Chore-Boy's pipeline washing system is tops. The Master Pulsator is a great improvement."

Prominent Michigan Veterinarian Likes His CHORE-BOY Pipeline System

Dr. Cyril Spike
Owosso, Michigan

Dr. Cyril Spike of Owosso, Michigan, says: "We have used a Chore-Boy Pipeline Milking System since 1954 to milk our herd of 120 pure-bred Jerseys — the largest Jersey herd in Michigan. Our Chore-Boy has done a wonderful job of milking for us. I'm sure Chore-Boy's low-vacuum and pulsating principle is largely responsible. We have had practically no trouble with mastitis, but of course, in mastitis control there are other factors besides the machine."

Massachusetts Dairyman Produces 1,255,000 lbs. of Milk In One Year with 110 Cows



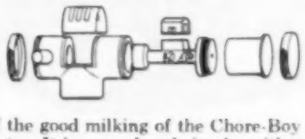
Walter Melnick
Deerfield, Mass.

Walter Melnick of Deerfield, Massachusetts has used a Chore-Boy pipeline milking system since the middle of 1956. Last year he produced 1,225,000 pounds of milk from 110 cows, with the help of one man and his 14 year old son. He says, "I'm certain that the remarkable results we have obtained are due to the Chore-Boy. We have had very little trouble with mastitis. I believe that is due to Chore-Boy's low-vacuum and the simple master pulsator which milks every cow the same way every milking."

Pulsators Are The Chief Cause Of Trouble In Milking Machines

Pulsators have always been the chief cause of trouble in milking machines. They are small air engines — required to operate under greatly varying conditions and frequently in dusty atmosphere. Small air passages become clogged, springs lose their tension, oil congests and collects dirt, diaphragms lose their tension. Some pulsators also lose their adjustment, which changes rate of pulsations, thus changing the milking action.

CHORE-BOY Pulsators Are Very Simple And Easy To Service



Much of the good milking of the Chore-Boy is due to the pulsator. It is rugged and simple, with only three moving parts. The air passages can be cleaned with a pipe cleaner. It has an air filter to keep out dust. A few drops of oil applied to the piston leather once a week keeps it flexible. The pulsator can be taken apart in seconds without tools. Any user can easily do this. It holds its rate of pulsation very well.

Your Chore-Boy "Know-How" Man will, without obligation, help you plan your system. With his advice you will have an efficient plant, producing top quality milk, at lowest cost.

CHORE-BOY LOW-VACUUM MILKING SYSTEMS

Your Chore-Boy "Know-How" Man is more than a dealer and a service man. He has been trained to help you put your dairy operation on a real money-making basis. See him today.

For Complete Information, Write Dept 30 • CHORE-BOY MANUFACTURING CO., Inc. • Cambridge City, Indiana

Costing Dairymen $250,000,000 Per Year!
Milk Consumers As Well As The Milk Producers

Don E. Colay, President Chore-Boy Manufacturing Co., Inc.

Statement of CHORE-BOY Policy Concerning Mastitis

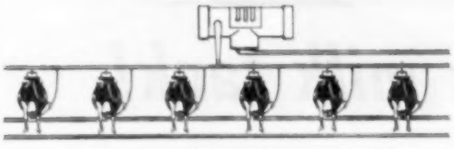
As a manufacturer of milking systems it is our aim to design a milker that will cause the least mastitis. And judging from the reports received from users the Chore-Boy will do that, when properly installed and operated. We do not say a Chore-Boy will prevent or cure mastitis for we know there are other causes aside from milking. We instruct our dealers and service men on proper milking practice and we are doing everything we can to get this mastitis situation under control. We congratulate Dr. Schalm and his associates at the University of California on the constructive job they are doing "to lick mastitis now" and to Hoard's Dairyman for publishing the articles.

President
Chore-Boy Manufacturing Co., Inc.

This CHORE-BOY Pulsator Has Given 25,000 Hours of Service — And it is Still in Good Condition.

This photograph shows a Chore-Boy Pulsator which has been in use on the Van Allman Farm near Louisville, Ky., since 1947. It is used about six hours a day, has given 25,000 hours of service and is still in good operating condition. It is one of four pulsators used on this farm to milk a herd of around 100 cows.

CHORE-BOY Double Master Pulsator Uniformly Pulsates up to 6 Milker Units (3 on each side)



Provides Uniform Milking For Every Cow —

The patented Chore-Boy Master Pulsator is not only very simple and reliable but it is obvious that one pulsator which does the work of six will require one-sixth the service. Since it operates up to six units, every unit will pulsate at exactly the same speed. That means that all the cows are milked in exactly the same way at every milking.

Here's Why CHORE-BOY Milks Fast With Low-Vacuum

High vacuum, even though it may not injure a cow, may be irritating, causing her to hold up her milk, milk slower and produce less. Chore-Boy employs a 55-45 milking cycle. Vacuum is on 55% of the time and off 45%. Chore-Boy uses less vacuum but uses it a little longer. Higher vacuum between the teat cup shell and inflation give a fast, gentle, massaging action. Larger milk and air passages move milk faster.

Don't Mix Parts From Different Makes of Milking Machines

We have found that some users use parts from different makes of milkers. Various parts of a milker are designed to work in relation to each other. If parts from mixed brands are used this relationship is upset.

All CHORE-BOY Milking Systems Milk In Exactly The Same Way

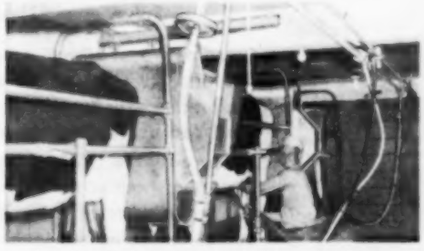
The De Luxe CHORE-BOY
LACTORIUM
With Herringbone Pipeline Milking System

Now Available With STAINLESS STEEL INTERIORS

As optional equipment, Chore-Boy Lactoriums may be provided with stainless steel wainscoating for the interior, or the entire wall and ceilings may be provided with stainless steel covering, if so desired.

The De Luxe Chore-Boy Lactorium with Herringbone Pipeline Milking System, as shown above, is one of the two models of Chore-Boy Lactoriums now available. It can be provided complete with manufactured building or any part of it. The Chore-Boy manufactured building is made in sections and is quickly erected. It is well insulated, has Thermopane windows, electric ventilation, and is strong and durable. It is delivered direct from the factory, is quickly erected, and the complete plant is sold by one manufacturer and one dealer.

Chore-Boy Around-the-Barn Pipeline Milking System



Chore-Boy Walk-Thru and Side-Opening Parlor Stalls

Chore-Boy Floor and Suspended Type Pail Milkers

Whether You Have 1 or 1000 Cows — Let CHORE-BOY Do Your Milking

No matter what kind of milking system you want, or need, Chore-Boy has it. For milking parlor use, the Herringbone System, first introduced and perfected by Chore-Boy, will milk up to 60 cows per hour and is superior to any other system. For those who prefer Walk-Thru or Side-Opening Parlor Stalls, Chore-Boy has excellent ones available. For the man who wants to milk his cows in Stanchion Barns, the Chore-Boy Around-the-Barn Pipeline System gives excellent results. For the dairyman who want pail milking, Chore-Boy has floor and suspending types which do a splendid job of milking. Your Chore-Boy "Know-How" man will be pleased to help you develop the best system for your particular needs.

CHORE-BOY Purchase Plan

This plan enables you to use your Chore-Boy while it pays for itself. Up to 36 months to complete payments and during this time you are covered by life, fire and liability insurance.

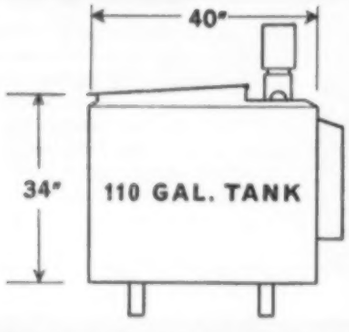
The World's Best and Most Complete Line of Milking Systems

NEW Small Tank!

SOLAR
Milk Minder

110 GAL. TANK

the only all-stainless steel bulk milk tank!



The NEW 110-gallon "Milk Minder" will fit the small milkhouse and also leave clearances required by local health codes. It is available in a self-contained model and the remote installation.

Now! You can have "Milk Minder" Quality in a smaller milk house too!

Small producer? Small milkhouse? Solar's NEW 110-gallon bulk milk tank gives you all the well-known "Milk Minder" quality and performance for the same or less money than you'd pay for other small tanks. Here's what you get:

Time-tested 18-8 stainless steel in tank shells, cooling plate and cradle, not just inner shell alone as in many other tanks. You benefit from lasting protection against rust and corrosion inside the tank. Your investment lasts!

10-20% more milk capacity than other small tanks PLUS Solar's direct, efficient cooling which saves power costs.

Quality "extras" such as hinged covers for one-hand opening—no lift off . . . smooth-sealed outer shell—no lap seams . . . outside mounting of agitator and measuring rod—no inside mounting to interfere with cleaning.

Ask your Solar Dealer about the NEW all-stainless steel 110-gallon "Milk Minder" or write for more information.

USI **Solar Permanent** DIV. OF U. S. INDUSTRIES, INC.
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FT-33

Plus
A NEW BULK TANK FINANCE PLAN
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Find out how easy it is to own a Solar "Milk Minder" Bulk Milk Tank with our new low-monthly-payment finance plan. Call, wire or write to
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A. D. A. halfway to goal

AT THE 20th annual meeting of the American Dairy Association, Hobart McVay, chairman of the membership committee, told the delegates, "We are only halfway to the financial set-aside goal established by leaders in the A.D.A. a few years ago.

"At that time, it was estimated that an annual $12 million budget would be needed to bring the sales message on milk and its products into every home in America at least once a week."

Dairy farmer investment in the nationwide selling effort climbed to a little over $6 million last year.

To put more muscle into the dairy selling effort, dairy farmer leaders in the American Dairy Association have established individual state set-aside goals for each state unit in 1959.

Other highlights of the meeting held in Chicago, March 18 and 19, are as follows:

1. Rhode Island was added to the membership roster, marking the completion of a long-time goal to get dairymen in all 48 states solidly behind a sales program for milk and its products.

2. A change in the by-laws of A.D.A. added two members to the executive committee. Formerly this was a group of five, called the administrative committee. The two new members were elected "at large." They are Armin Truttman, Olema, Calif., for a two-year term and Milton C. Southwell, Athens, Ga., for a one-year term.

3. Re-elected to lead A.D.A. were president Lyman McKee, Wisconsin and vice-president William Hitz, Iowa. Holdover officers are secretary C. A. Houlette, Ohio; treasurer Dale Stewart, Nebr.; and assistant secretary-treasurer John Moser, Ky.

4. Action was deferred on approving a replacement for the Perry Como television show after expiration of the present contract next September. It is expected that new television properties may become available at a later date. In the meantime, management was instructed to review the total promotional program for each product, evaluate the various types of advertising media, and recommend a combination for each product that will do the most effective job.

5. Two new research products authorized at the annual meeting were assigned to the University of Minnesota and Oregon State College. Minnesota will have a team of scientists exploring the possibilities of developing a more uniform and spreadable butter with improved flavor characteristics. Oregon will investigate new techniques in natural flavor development on a control basis. The association also voted funds to support further studies on the relation of protein and fat to cholesterol levels.

The highlight of President McKee's address was found in this quotation:

"Bargaining power cannot be a substitute for consumer demand. Unless the demand for the product is strong, there is little to bargain about. In a growing market bargaining power is greatly enhanced for the producer of the product. We cannot depend upon a tight control over a local market, through various bargaining devices, to be our assurance of a profitable price for our milk. Let no one be misled into thinking that bargaining power—which is essential—can replace the basic ingredient in the dairyman's whole scheme of things: A sound and, preferably, expanding market demand for milk and milk products."

60" OR 80" POPULAR CURVED REAR DELIVERY HOOD WITH KNIVES OR CHAINS.

60" COMPLETE OFFSET WITH DIRECTIONAL CONTROL DELIVERY AND FREE-SWINGING KNIVES.
MORE FORAGE IN LESS TIME WITH THE 1959 BRADY CHOPPERS

BRADY GREEN CHOPPED FORAGE FED CHAMPIONS PRODUCE MORE MILK

360° DIRECTIONAL CONTROL HOOD IN 60" OR 80" MODELS WITH FREE-SWINGING KNIVES.
Field test any of these 3 BRADY CHOPPERS. Turn them loose in the heaviest and toughest forage crops! See how quickly they handle crops of any size—day in and day out! No break-downs with economical, rugged BRADY!
GREEN CHOPPING SAVES PASTURE ACRES
Often doubles capacity and increases milk production. ONE MAN CAN CHOP ALL HIS COWS CAN EAT IN 15 MINUTES. Less chance for hardware disease. Chops cornstalk and straw for bedding. Clips pastures for mulch or silage as well as chops all grain, grass, and legume silages.
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SEE YOUR DEALER OR WRITE FOR FREE BROCHURE
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YES! Send me complete information and brochure about the rugged, low-cost BRADY Choppers.
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OTHER FAMOUS BRADY PRODUCTS: Mounted and Pull-Type Rotary Hoes, Fifth-Wheel Wagons, Hay Conditioners.

MEYER Hay Conditioner "ROLLS IN" Extra Feed Value!

For best quality hay, *roll* it through a fast, rugged Meyer Hay Conditioner. Stems are cracked entire length — not crimped — dry in half-the-time, remain pliable, green, sweet-smelling, and keep their protein-packed leaves. Juices are sealed in — hay has greater feed value . . . brings several dollars per ton more than ordinary hay. Yet Meyer is priced lower.

New improved large diameter Rotary Pick-Up lifts, loosens and feeds hay uniformly to new exclusive, non-clogging steel rolls — floats freely over rocks and terraces. Works under **all** conditions — heavy or thin hay — smooth or uneven rocky terrain.

Condition while you cut. Use your own mower with Model 650, or get Model 660 with built-in-mower, a Meyer patented feature. Model 200, without separate pick-up, is for use on smooth, rock-and-terrace-free fields. Does superior job to crimper-type machine.

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MAKER OF FAMOUS MEYER ELEVATORS

Meyer — 1st in the Field — Original and Oldest Manufacturer of Hay Conditioners with 5 Years More Experience Than All Other Makes.

MILK RECORD SHEETS, HERD BOOKS

Record keeping is easy when you use Hoard's Dairyman milk record sheets and herd books . . . Send for samples . . . No obligation

HOARD'S DAIRYMAN **FORT ATKINSON, WISCONSIN**

SMALLER HERD! MORE MILK!

TESTS SHOW YOU CAN HAVE BOTH IF YOU FEED Hardy Saltrazine® (Medicated Worming Salt) TO YOUR DAIRY HEIFERS

Tests prove that dairy heifers raised on Saltrazine gain faster with greater feed efficiency. Thus they will reach breeding weight faster and allow you to keep a smaller replacement herd.

Tests also prove that cows produce more milk when fed Saltrazine until lactation.

No matter how healthy your dairy herd looks, it has some worm parasites which are robbing you of extra profits. Now, however, these parasites can be controlled with new Hardy Saltrazine — a combination of phenothiazine (most effective drug for controlling worms), Hardy Trace Mineral Salt (supplying salt plus iron, iodine, cobalt, copper and manganese) plus a tested palatizing agent.

FOR ADDITIONAL INFORMATION, WRITE

HARDY SALT CO. P. O. Drawer 449, St. Louis 66, Mo.

ORIGINATORS OF TRACE MINERAL SALT

Where consumers' milk money goes

In buying bottled whole milk, less money goes to farmer than to those who handle the product.

by H. C. Kriesel

THE spread between the farm price and retail prices for dairy products is now running at an all-time high. Only butter in 1919 and 1920 is an exception. The steady rise in this farm-to-retail margin reflects increased costs for specific services and some new or additional services. Few services have been curtailed.

For the past six years, the "marketing bill" for processing and distributing dairy products has exceeded farm income from the sale of milk and butterfat.

The annual farm value of milk and butterfat consumed in the U. S. averaged about $4 billion from 1953 through 1958. The marketing bill, on the other hand, was $4.8 billion.

In the 40 years from 1913 to 1953, the dairy marketing bill exceeded farm value only eight times, in 1915, 1921-22, 1931-34, and 1938.

There is nothing in the offing to suggest that 1959 will be unlike the past six years. However, despite a record marketing bill, cash farm value as well as retail value will be at a new record this year.

Fluid milk usually gets first attention in any consideration of margins. In 1958, the average price paid by consumers for milk in single quarts (store and home-delivery milk combined) was 24.5 cents per quart. The price received by farmers for milk used in bottling was 10.7 cents, making a difference (gross margin) of 13.8 cents per quart.

45 per cent and 1 per cent . . .

Except for no change from 1949 to 1950, this spread has widened each year since 1945. In 1947-49, following removal of price controls, the margin was 9.5 cents per quart. The increase to 13.8 cents in 1958 was 45 per cent. In the same period the price to farmers for a quart of such milk increased from 10.6 cents to 10.7 cents, less than 1 per cent.

Last year farmers received 44 per cent of the retail price, the lowest percentage since 1941. In 1947-49 it averaged 53 per cent.

The figures on prices of milk cited here are based on prices of milk bought mainly in single quarts. In recent years an increasing proportion of milk purchased has been in half-gallon and gallon containers. In many places the price, when purchased in these large containers, is less per quart than when purchased in single quarts. As a result, the retail price and upward trend in margins probably are somewhat overstated.

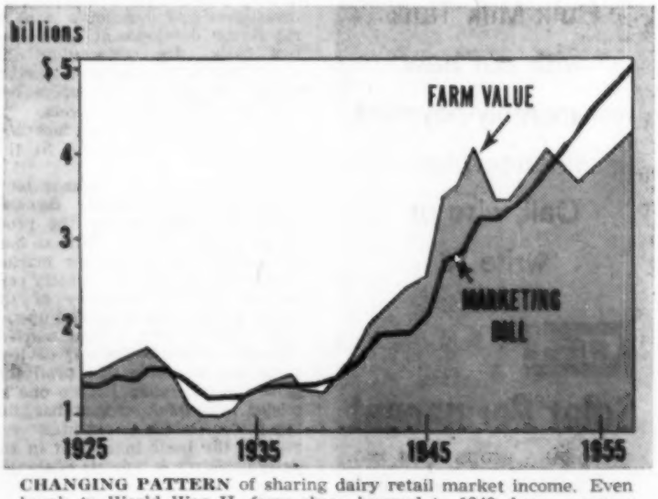
The 1958 margin for butter was only 15 per cent over the 1947-49 average. But at 23.2 cents per pound the margin was the highest on record, except for the 25 cents of 1919 and 1920. As a percentage of retail value of butter, the farm price in 1958 was 69 per cent, the same as in 1955 but otherwise the lowest since 1940.

For cheese and evaporated milk, the margin increases in the last decade were considerably larger than for butter, but less than for fluid milk. In 1958, farmers received 48 per cent of the retail price in the case of cheese and 41 per cent for evaporated milk.

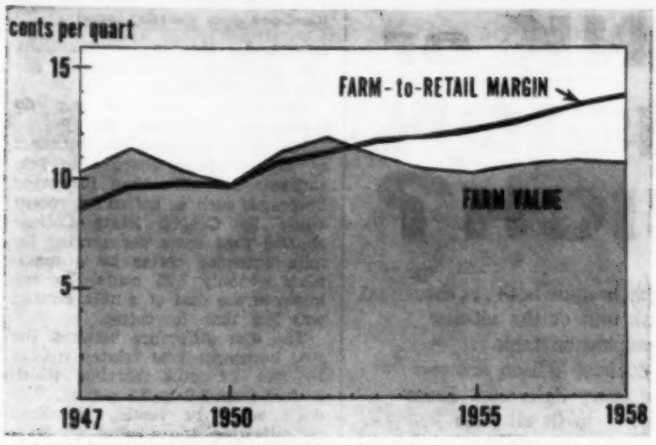
Incidentally, these percentages of retail values can be misleading. The mere fact that a percentage is higher for one product than for another is not to say that those producers have a financial advantage. The percentage is higher for butter than for fluid milk. But the price received by producers is higher when their raw milk is used for bottling than for making butter.

Higher cost . . .

Processors and dealers have faced rising costs much the same



CHANGING PATTERN of sharing dairy retail market income. Even break to World War II, farm share boomed to 1949 drop, recovery with the Korean War, then marketing bills moved steadily ahead.



FLUID WHOLE MILK MARGIN has climbed to where 13.8 cents goes to marketing and only 10.7 cents to the dairy farmer. Chart shows only one-quart prices. Gallon and half-gallon margins are less.

as farmers. The significant difference is that milk processors and dealers have been more nearly able to adjust to the cost increases.

The cost of labor accounts for about half the total margin in the case of fluid milk. This probably has increased as much, if not more, for the milk processors as for farmers. Cost of containers, especially important in fluid milk distribution costs, has approximately paralleled increases in labor costs. As for costs of trucks and machinery, the milk processors and dealers buy from about the same general ultimate sources as farmers. Price changes probably have been similar.

To summarize: All elements in processors' and dealers' costs have increased, many of them more than the gross marketing margin per unit. However, with growth in total volume, and some technological improvements, the percentage of net worth for major dairy companies changed little in the last decade.

The rising dairy "marketing bill" means, obviously, that farmers have not gained as much as they might expect from expansion in consumer incomes to record levels. The climb in marketing margins has restricted the effect on sales of the lowered support prices in 1954 and 1958.

When supports were lowered . . .

The farm price of milk dropped from above support levels in 1952 to below the support level in early 1954. And the support level was reduced on April 1, 1954. This resulted in retail price reductions for all principal items. The reduction, however, was less than the farm price decline.

In 1958, the price drop to farmers was less than it was four years earlier. At retail, only the price of butter declined from a year earlier in 1958, and that was less than the comparable price reduction at the farm level.

Of course, with higher marketing margins retail prices probably would have been higher if there had been no reduction at the farm level.

It is difficult to reduce margins when real incomes are rising rapidly. Consumers increase their demand for services (including those in the food package) more than for the food itself.

Some of this packaged service falls in the category of built-in maid service. Improvements in efficiency of performing these operations usually are small as compared with costs of new services instituted or demanded.

One of the few instances of reductions in services has been in fluid milk. A substantial shift has occurred from home delivery to store buying. Also, the frequency of home delivery has been substantially reduced following the emergency-dictated pattern of World War II.

The deep concern of the United States Congress with the cost of distribution of agricultural products led to passage of the Research and Marketing Act in 1946. Results of research under this authority and other sponsorship has pointed the way to some significant economies in individual instances. And this work is being

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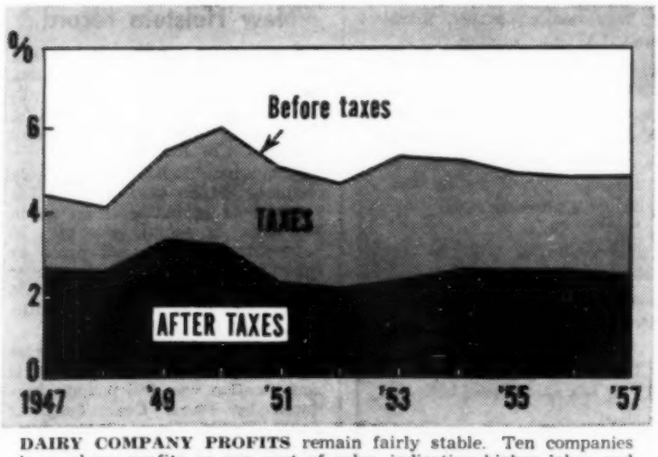

DAIRY COMPANY PROFITS remain fairly stable. Ten companies have above profits as per cent of sales, indicating higher labor and material costs are taking a much larger share of the dairy dollar.

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(signed) Fred A Ikeler

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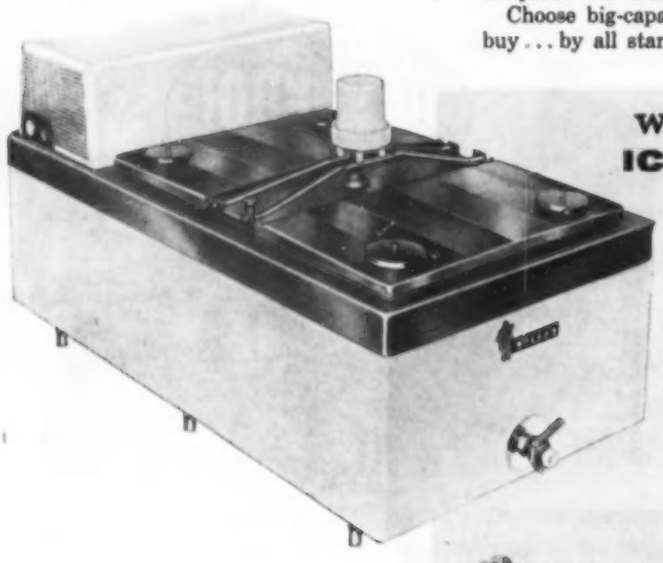

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Also print in margin the name and address of your favorite dealer and milk plant manager

(Continued from preceding page)

continued. Private organizations also are pursuing methods to devise cost reductions.

Meanwhile, dairymen can do something for themselves.

Everyone has noticed instances of higher prices charged in restaurants for milk than for other beverages such as coffee. A recent study by Oregon State College showed that costs per serving for milk exceeded coffee by a maximum of only 1.25 cents. In one instance the cost of a milk serving was less than for coffee.

The cost difference between the two beverages was related mainly to size of milk serving which ranged from 5.0 to 7.5 ounces. The costs could be readily equalized by adjusting the size of servings.

Dairy farmer customers of restaurants which seem to charge excessively for milk might promote the dairy farmers' cause in general merely by asking the managers a few searching questions about their comparative costs of milk in relation to other beverage servings. A convinced manager could well become a permanent promoter of milk sales. **THE END**

A.D.A. to sponsor Welk

The Lawrence Welk television show will be sponsored by the American Dairy Association for the 1959-60 television season. The ABC-TV network program will replace the Perry Como show, which has been sponsored by A.D.A. for the past two years.

Alternate half-hour segments of the new program, beginning September 24, will be sponsored by American dairy farmers. The Perry Como show will be sponsored by A.D.A. until September.

Beginning in late September, the hour-long Welk musical variety show, which has been one of the top rated television programs for the past several years, will be telecast from 9 to 10 p. m. CST each Thursday.

Shelby Robert moves to Pet

The market research director for the national office of the American Dairy Association has resigned his post to do similar work for the Pet Milk Company. Shelby Robert has had the responsibility of analyzing marketing research studies and then interpreting findings for the guidance of the American Dairy Association and the entire dairy industry.

New Holstein record

A registered Holstein cow, owned by Lewis Zimmerman, Lehighton, Pa., has shattered a national all-time record in the A.R. testing program of The Holstein-Friesian Association of America.

Zimmerman Belstar Royal Seely produced 24,058 pounds of milk, 910 pounds of butterfat on 3x in 305 days. It sets a new high in butterfat production and ranks as the third highest milk record ever made by a senior 3-year-old milked three times daily in the 10 months division of the A.R. program.

The previous national butterfat record for senior 3-year-olds in this classification was 886 pounds, produced by Pabst Dean Judy at Pabst Farms, Oconomowoc, Wis., in 1956.

The new champion was in calf for 174 days of this period.

FEEDING

What about feed additives for dairy cattle?

by L. A. Moore

UNLIKE swine and poultry, the needs of the dairy cow for feed additives, minerals, and vitamins are relatively simple. This is due to the fact that dairy cattle still subsist largely on natural feed sources such as forages, which supply many of the vitamins and minerals necessary to health, reproduction, and production.

The dairy cow is unique in that she has a rumen which contains large numbers of bacteria that rebuild feed nutrients and synthesize many of the vitamins. For example, such vitamins as vitamin B-12, ribo-flavin, and other B vitamins are formed in the rumen.

Despite her simple needs, the level of milk production has been tremendously increased in recent years. The dairy cow does, therefore, require more energy and sometimes more protein, minerals, and vitamins.

Mineral needs low . . .

Since the dairy cow consumes large amounts of forage, most of the mineral requirements are met. High-quality forage furnishes more than enough calcium necessary for maintenance and milk production. When high protein supplement is included in the grain mixture, the phosphorus needs are usually met.

On the other hand, if just corn and oats or other cereal grains make up the grain mixture, some supplemental phosphorus such as bone meal, di-calcium phosphate or defluorinated phosphate is needed.

The only mineral generally needed is common salt, which furnishes sodium and chlorine. In areas deficient in iodine, copper, cobalt, and iron, a trace mineralized salt mixture should be fed. In addition, most commercial feed mixtures contain sources of these elements.

Because many of the vitamins are synthesized in the rumen, the only two vitamins which we know are required by the dairy cow are vitamins A and D. A deficiency of vitamin A will occur where too little forage or poor-quality hay is fed to young animals. Besides good-quality forage, dehydrated alfalfa, pasture, and grass silage are other important sources of carotene or pro-vitamin A. Some form of vitamin A is generally added to calf starters.

If mature dairy cattle receive plenty of good-quality forage, vitamin D usually does not need to be supplemented. On the other hand, it usually should be added to calf starters.

Antibiotics are widely used in the diets of poultry, swine, and beef cattle. Because aureomycin is quite effective in promoting increased rate of growth and in decreasing the amount of scours in calves, it is now added to most commercial calf milk replacers and starters. Reducing scours is of greatest importance since the faster growth rate usually disappears. (See page 546.)

Some are now recommending aureomycin in dairy cattle rations as a means of preventing foot rot, and other low-grade infections. It is likewise claimed it will increase milk production. Since we have not seen conclusive data supporting these particular claims, we cannot recommend, at this time, its being fed to mature dairy cattle.

Various hormones have been fed to livestock during recent years. Thyroprotein is one that has figured prominently in dairy cattle research. Experiments conducted here at Beltsville have shown that it does very materially increase the level of milk production for a period of three to four months. However, where energy intake (feed) is equal, total milk production for the lactation is not increased. Except under very specific conditions, therefore, such as where the dairyman wants to increase production during the base period, we are not recommending it.

Sodium propionate has been recommended as a preventative for ketosis or acetonemia. While research has shown it to be effective, adding propionate to feed makes the mixture less palatable.

More recent studies have shown that adding a combination of calcium and sodium lactate is effective in preventing ketosis and it is more palatable than propionate when mixed in the grain ration. It should make up from 6 to 10 per cent of the concentrate mixture and be fed for a period of seven to eight days.

Milk fever can largely be prevented by feeding vitamin D for three to seven days before calving. (See page 505, May 10 issue.)

A process similar to the "Spangenberg process" (introduced about 20 years ago) is now being sold. It involves growing sprouted grains in cabinets as a source of nutrients. The grains are in contact with a hydroponic or nutrient solution and after 8 to 10 days growth, the tray contains a mass of green material and roots.

Between 1925 and 1935, English scientists conducted controlled experiments and found the results were not advantageous. Some reported a loss of as much as 25 per cent dry matter as a result of the sprouting process. This would mean a corresponding loss in energy value of the feed. Feeding the sprouted grains did not result in an increase in the digestive processes of the animals, nor was there improvement in reproduction or general health.

Since the practice did not continue in England or the United States 20 years ago, it is unlikely it has very much value today. We believe the principal source of nutrients for dairy cattle should come from forages, thus there would be little economic advantage to a process which would require grains in place of forage nutrients.

The author is chief of the Dairy Cattle Research Branch, U.S. Department of Agriculture, Beltsville, Maryland.

NEW HOLLAND Hayliner "68" family-size baler, made by New Holland Machine Co., subsidiary of Sperry Rand Corporation, New Holland, Pa. Powered by Model THD 18-hp. Wisconsin 2-cylinder air-cooled engine. This machine is designed to give Big-Baler performance at small-baler cost. "Flo-action" feed sends hay through the baler smoothly. No sharp corners to turn — crop gets less handling.

DEARBORN Self-Propelled Swather, made by Tractor and Implement Div., Ford Motor Co., Birmingham, Mich. Powered by Model VH4 Wisconsin V-type, 4-cylinder air-cooled engine. This machine is designed for high efficiency, large-capacity one-man operation and provides easy maneuverability under all field conditions.

BUFFALO TURBINE Sprayer-Duster, made by Buffalo Turbine Agricultural Equipment Co., Inc., Gowanda, N. Y. Powered by Wisconsin V-type 4-cylinder air-cooled engine. The powerful blast of this versatile insecticide-dusting machine provides excellent coverage in both field and orchard work.

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Questions and answers on hay wafers

(Continued from page 549)

in the making up of several complete rations from which the dairyman would select the ones meeting his particular requirements.

What do feeding trials on wafers show?

It is only within the last year that equipment manufacturers have been able to provide machines to make the quantities of forage pellets needed for feeding tests going on across the country in college laboratories.

To date, feeding trials have shown that dairy cattle consume essentially the same quantity of good grade alfalfa in the form of wafers as in baled hay.

The feeding trials also have shown that the quantity of milk produced and the fat content of the milk are essentially the same when cows are fed wafers as when fed baled hay of the same quality.

What saving in storage space could I expect with wafers?

The space required to store wafers is about one-half to one-third that required for baled hay, about one-fifth to one-sixth that for chopped hay, and about one-seventh to one-eighth that for long hay. These figures, of course, are approximations because of normal variation in density.

Strength of the floor supports in most mows would limit the depth of wafer storage. Bin wall pressures would probably be about the same with wafers as with ear corn.

Such pressures would be considerably less than for shelled corn and probably a little less than for good oats. Any of the commercial bins used for corn storage could be used for wafers.

A good-sized, semi truck could be loaded with 25 tons of wafers and a large freight car could hold 50 tons.

What is the stability of wafers in storage?

Wafers made with presently available equipment expand to a limited extent immediately after being formed. However, when stored in bins or bags, there is very little expansion. Bags of wafers have been stored for over one year with no appreciable change. Wafers stored in the open, completely unrestrained, have a tendency to expand considerably in a matter of only a few days.

What is the effect of rewetting on wafer expansion?

The wafers made and used in the experimental work at the University of Wisconsin did not expand appreciably due to rewetting. Bags of the wafers were soaked by spraying with warm water. Individual wafers expanded into free space available to them but there was no tendency for the bags to burst. A leaky roof undoubtedly would cause wafers to spoil as any hay would but there does not seem to be a serious danger of bin wall failure due to expansion.

At what moisture content can forage wafers or pellets be made?

Most results on field pelleting of forage indicate that if hay is dry enough for safe storage, it can be formed into some shape of a wafer, pellet, or slug.

Occasionally an operator reports that it must be slightly drier for wafering. Others have reported success with slightly wetter material.

Wafers have been made successfully in the laboratory at 30 per cent moisture. These had to be dried to store satisfactorily. Limited quantities of these 30 per cent wafers have been dried readily in the laboratory under conditions similar to those on many farms for corn drying with heated air.

How much power will a wafering machine require?

There are numerous methods of producing these compacted masses of hay. Some methods are much less efficient than others. They require more power consumption.

At best we can expect a wafering machine to take about twice the power of a baler with similar capacity. As yet we have not seen a simple production mechanism which follows the most efficient methods. It could well be that the designers will build the simpler machines at the expense of requiring a larger engine and greater operating cost.

Usually, there is a lot of variation in machines developed to carry on any new process. As the process becomes established, the machines become more uniform. An example of this is to be found in automobile transmissions. The old gear shift transmissions were all pretty much alike. However, there was considerable variation in both construction and efficiency of the first automatic transmissions.

When can I buy a machine?

This new hay-making process promises a minimum of manual labor and an opportunity for complete mechanization of forage feeding coupled with tremendous savings in costs of storage space and transportation.

There has been tremendous interest in and demand for such machines.

If you are a feed processor with a volume of business to support the investment, you can order a machine today. If you are a farmer interested in a portable field machine, an optimistic guess is that you may be able to get one when your present baler or forage harvester wears out. **THE END**

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Chemical poisoning . . .

. . . can happen on any farm. However, if you know which chemicals are dangerous, your livestock need never become affected.

by E. A. Woelffer, D.V.M.

THE annual loss from poisoning on farms is estimated at over $4,500,000 in cattle and $500,000 in swine. Chemicals are largely responsible.

Poisonings occur more often in cattle than in swine, less frequently in sheep. Some poisons cause death rather quickly. Others build up more slowly to produce a chronic form of poisoning, which is usually less serious.

Only four of the more important poisonings are described here.

Arsenic poisoning is caused by white arsenic, Paris green, and sodium arsenate. These forms of arsenic frequently are used in solutions as sprays or dips to kill insects, parasites, weeds, and rodents.

Cattle seem to like the taste of arsenic. They readily drink arsenic solutions and eat weeds or plants which have been sprayed with it. They like to lick buckets or boxes which have contained arsenic compounds, especially if the containers are not completely empty.

Fluorine poisoning results from excessive intake of fluorine. It occurs mostly in areas near industrial plants where fluorides are discharged into the atmosphere and settle on the foliage. It also has been reported in cattle fed, over a long period of time, livestock mineral mixtures containing rock phosphate.

Salt poisoning results when livestock consume too much salt. While this doesn't ordinarily occur, it can take place when salt-hungry animals have limited access to water.

This condition is more apt to occur during hot weather.

Animals that have been receiving a high level of salt in a daily ration seldom are poisoned, even though salt is available.

Salt poisoning is more common in swine than in other farm animals.

Selenium poisoning is generally found only in semiarid regions where the average rainfall is less than 20 inches a year. It occurs when livestock graze on areas where plants have absorbed selenium from the soil.

Symptoms . . .

Some signs of acute arsenic poisoning include drooling, severe abdominal pains, scours, depression, and weakness. Affected animals walk with a staggering gait. Some become completely paralyzed, particularly in their hind quarters.

Death usually is preceded by convulsions. There also may be a loss of appetite and increased thirst. If the poison comes in contact with the animal's skin, there may be serious local irritations, sloughing of hair, and drying of the skin.

In the chronic form, there is a gradual loss of weight. Often a digestive upset occurs, followed by scouring and depression.

Fluorine poisoning may occur either in the acute or chronic form. Most cases are of a chronic nature. Common signs of the acute form are scouring, sudden loss of appetite, and rapid loss of weight.

In the chronic form the animal exhibits gradual loss of condition; dry, stiff skin; abnormal growth of hoofs; and reduced milk yield. The permanent teeth show a mottling, staining, and excessive wear.

Signs of salt poisoning usually include extreme sensitivity to touch, loss of appetite, red and dry mucous membranes of the mouth, in-co-ordination and paralysis, and occasionally convulsions.

Chronic selenium poisoning may affect cattle, swine, and horses. Cattle and sheep are likely to develop "blind staggers." Cattle sometimes lose their switch, develop rough horns and deformed hoofs.

In some cases in horses, there is sloughing of the hoofs and a loss of hair from the mane and tail.

Affected animals often become sterile or slow breeders.

Prevention . . .

Accidental poisonings usually are due to carelessness. Avoid throwing empty or nearly empty cartons or buckets in areas where they will be available to livestock. Hauling refuse to the dump in the cattle pasture is often a source of trouble.

In fluorine and salt poisonings, the problem is to prevent animals from getting excessive amounts.

In preventing salt poisoning, easy access to plenty of water is helpful. About the only possible way of preventing selenium poisoning is avoiding using ranges which contain the poisonous plants. Some authorities believe sheep can be given some protection against selenium poisoning by feeding a high protein ration.

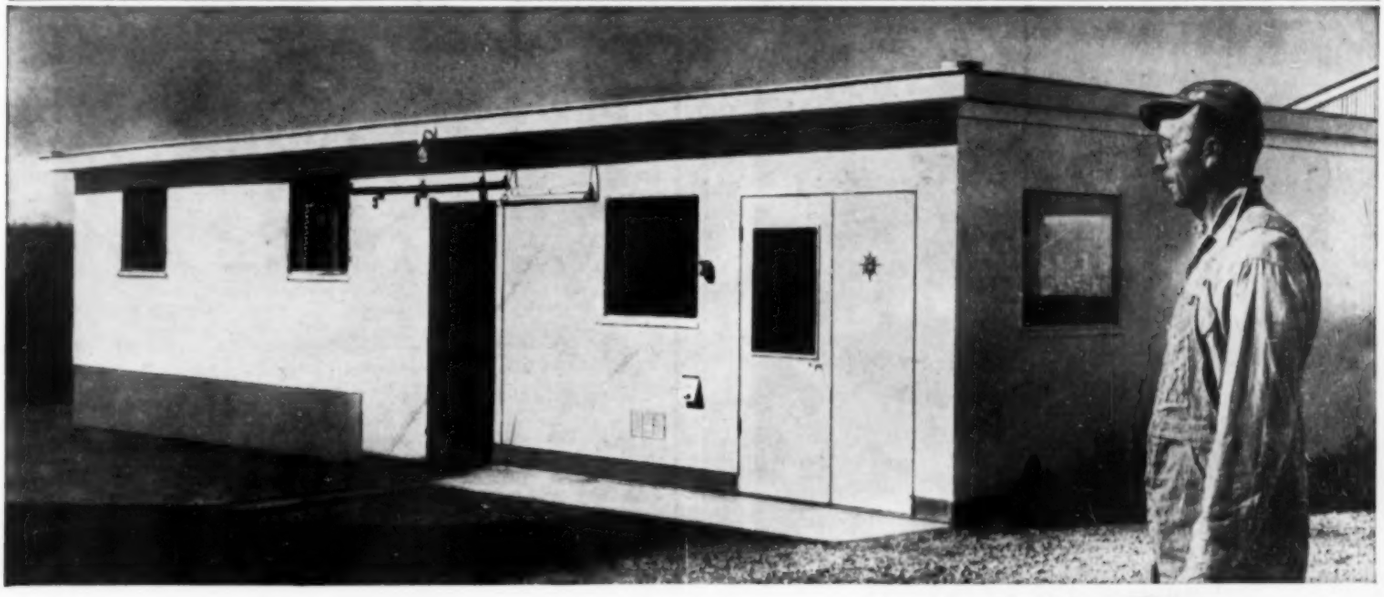
Treatment . . .

The symptoms of the different types of livestock poisonings are so complex and often look so much like those of certain communicable diseases that, when symptoms appear, the best first step is to have a veterinarian check the animals to determine which condition exists. Unfortunately, there usually is little which can be done for animals that have taken an overdose of arsenic.

Likewise, there is little hope for overcoming the damages done by fluorine poisoning. Feeding liberal amounts of calcium and phosphorus or aluminum compounds will sometimes prevent excessive accumulation of fluorine in the teeth and bones of the animals.

There is no universally accepted treatment for salt poisoning. Giving the affected animal a large volume of water may help in some cases. Selenium poisoning apparently cannot be treated successfully.

When dealing with cases of suspected poisoning do not give up too easily. With care and treatment, even very sick animals can be saved. Also, it is wise to remember that what looks like poisoning may not be that at all, but some other form of disease.



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DAIRY FARM HOME

Canning and freezing summer fruits and vegetables for winter's needs

by Marian Pike

ANYBODY who can read and follow directions can develop skill in canning and thereby save both food and money. The skillful home canner is a good planner. So don't wait until canning day to sharpen knives and assemble utensils, jars, and caps needed for the job. Put up a few jars every day or so instead of trying to crowd season's canning into a few days.

Add a teaspoon of salt to each quart of vegetables, or not, as you choose. Salt is for savor, not saving. Skip pre-cooking steps if you will, but **ALWAYS** choose to:

1. Use regular home canning jars suitable for sealing with the caps or lids to be used. If you need new jars, buy the tapered kind marked for measuring.

2. Fill jars; use caps; remove bands and test seal as directed on box in which they were bought; using instructions which apply to one brand on another is a common cause of sealing failure.

3. Use up-to-date canning methods. **ALL** old canning books contain unreliable information.

4. Shun "trick" ways of canning. Every one of these methods can cause serious trouble, maybe not on the first or even the second try. But not every driver is caught when he runs a stop sign.

5. Use boiling-water bath canner for tomatoes and other acid foods; steam pressure canner for beans, corn, and other low-acid foods.

6. Be sure all parts of steam pressure canner are in perfect working order.

7. Use strictly fresh, sound produce and use it when it is at the right stage for canning. At this stage: Pods of snap or green beans are meaty, the beans tiny; if fully developed beans are to be canned, processing time should be the same as for shelled beans. Shelled beans and peas are green on the inside. Kernels of corn are plump, glossy, and filled with milk-like juice. Tomatoes are fresh, sound, and firm ripe. Never can tomatoes from which decayed or fungus spots have been cut.

8. Wash, rinse, and drain things to be canned before cutting or breaking the skin.

9. Pack jars "comfortably tight," meaning no wasted space, but enough room for liquid to circulate between pieces.

10. Avoid wasting time between steps in preparing food, packing it into jars, and processing. (If it is necessary to can a large amount in one day, spread the produce where it will be well ventilated and reasonably cool; bacteria, molds, and yeast which cause spoilage grow rapidly in warm dark heaps of vegetables. Processing may kill the organism but it cannot destroy the unpleasant flavor produced by the growth of the organism.)

REMEMBER, oven canning is both unreliable and dangerous. Food is likely to spoil; jars may explode.

Conserve the strawberry

Quick cooking in small batches is the general rule to follow for making good jams and jellies. The favorite strawberry preserve recipe at our house for years has been this:

Boil together for 3 minutes **4 cups mashed berries** and **2 tablespoons vinegar.** Add **4 cups sugar,** bring to a rolling boil and boil 10 minutes. Stir and skim occasionally while cooling. Spread out on a glass platter or flat cake pan. Seal cold in sterilized jars the next morning.

Strawberry-Rhubarb Conserve

1 large orange
3 cups sliced rhubarb
3 cups crushed strawberries
5 cups sugar
½ teaspoon salt
1 cup raisins
½ cup chopped nuts

Finely chop orange peel and pulp. Combine in saucepan with 1 cup water and cook until peel is tender. Add other ingredients, except nuts, and boil until mixture begins to thicken. Add nuts and cook about 5 minutes longer. Pour boiling hot conserve to within ⅛ inch of top of half pint jars. Seal at once with regular home canning caps.

Peas . . . can or freeze

Ignore the old nursery rhyme about peas porridge hot when you process peas, because you don't want any nine-day-old peas. Use them when they are young, green throughout, and garden fresh.

If you choose to freeze peas, they must be blanched (scalded) and then chilled and drained before being placed in an airtight container. If you prefer to can them, you may use either the hot or the raw pack method. The raw pack saves a little time, but hot pack usually utilizes the jar space to better advantage. Processing is the same for both methods. Some recipes for canning peas call for 1 teaspoon each salt and sugar to the quart, and some for salt only. There is no reason other than flavor, for adding either salt or sugar.

It is most important to examine jars, adjust caps, and test seal according to manufacturer's instructions.

To can peas . . .

Hot Pack: Shell, sort, rinse, and drain peas. Cover with hot water. Boil 2 or 3 minutes. Pour hot into hot jars, leaving 1-inch head space. Add 1 teaspoon salt to each quart and boiling water, if needed, to cover peas. Process both pints and quarts 40 minutes at 10 pounds steam pressure. If peas are extra large, process 10 minutes longer.

Raw Pack: Pour prepared peas into hot jars leaving 1-inch head space. Add salt. Fill jars to ½ inch of top with boiling water. "Knife" out air bubbles. Process like hot pack.

To freeze peas . . .

Wash, shell, sort, rinse, drain, and scald peas (not more than 2 quarts at a time) 2 or 3 minutes in boiling water. Chill in ice water. Drain peas and pour them into air-tight containers. Place in coldest part of freezer.

From Day to Day

by Lois J. Hurley

DO YOU know what "planned obsolescence" is? It's a concerted pressure move on the part of manufacturers, wholesalers, and retailers, via advertising, to put what you already have out of style and make you want something else.

Fashion, of course, has been run this way for decades. One season the skirts are long, next they're short. The chemise is in; the chemise is out. Skirts are full; they're narrow. Mink is the only fur to buy; fox is completely obsolete. Hats are broad-brimmed; they're brimless. Shoes have long, pointed toes; they're toeless.

Now this same plotting has crept upon us in all lines of the goods we buy, according to Vance Packard, who recently lectured in my town on the Library Series. And Mr. Packard is in line to know, having written several books on the subject, including the best-seller, "The Hidden Persuaders."

When the manufacturing and advertising boys think the market is saturated with Venetian blinds, for instance, they stop showing them in smart interiors in house and furnishings ads. Promotion pieces flood editors' desks on other types of window treatments. If overstuffed furniture must go, they launch campaigns for sleek-lined pieces.

If most everybody in the world has furnished his home with stark modern, the swing goes back to cushiony provincial. And just when almost everybody has built themselves a rambling ranch house with glass walls and brick and paneled interior finishes, along comes the insidious insistence that the only thing to put up is a tall, narrow, gabled house with little-paned windows, plastered and papered walls, and cozy curtains.

The trouble is, it's just woman nature to be dissatisfied and always on the look-out for something new and different and I guess these fellows know it. Shall we admit we're "sheep" to a certain extent and be willing victims, or shall we fight? I guess that's an individual decision.

Going back to the matter of women's clothes, I recently saw Irene Castle, the once famous dancer, on a TV interview to introduce a book she had just written about herself and her equally famed husband, Vernon Castle.

While no longer young, Mrs. Castle was very smartly dressed and nice looking. The interviewess asked about the dress she was wearing.

"The same dressmaker made it who has sewed for me for the last 25 years," Irene Castle replied. "It's a variation on the same pattern I've used for the same length of time. I found a design I liked and that flattered me and I've stuck to it through thick and thin."

A good philosophy . . .

Probably all of you are at least familiar with the name of Frank Lloyd Wright, the famous architect whose designs and ideas on architecture have raised argument and comment everywhere he has built a building.

Here in Wisconsin we are very aware of him and especially in the town where I live, it being the home of the S. C. Johnson Wax Company, whose offices and office tower Wright designed and which have become world famous for startling innovations in business structures.

Wright died recently and certainly an era passes with him, controversial figure that he was. I remember his last interview on television, back in the winter, at which time he expressed some of his feelings on what architecture should mean to a culture. The interviewer asked him if he thought he would ever see the things he had worked for, come to pass. His answer was significant: **"What I hope for, I expect,"** he said.

I've thought of those simple words many times since I heard them spoken. They express the philosophy of a positive life, certainly; they should go along with those of us who are somewhat doubtful, to bolster our faith in ourselves and our ideals and dreams.

Props to lean on . . .

Along the same line of great words, some years ago Dr. Daniel A. Poling, a great Protestant churchman, published a little guide to helpful Bible reading a few of which I offer you.

Are you afraid? Read the 24th Psalm.

Do you lack courage? Read Joshua 1.

Have you lost faith and hope? Read Hebrews 11.

Do you want the secret of happiness? Read Colossians 3:12-17.

Has your family circle been broken and do you wonder about the future? Read St. John 14.

The last question is one we often ponder on Memorial Day, I think, as we visit the resting places of the dead with our flowers of love and memory. A question never answered for us; we must each believe as we can about it and the most hopeful feeling is that we will live again in spirit and know those we have loved, and lost awhile.

Reader's favorite . . .

From Mrs. Elwood Gulick of New York comes this recommended recipe which she says is good enough for a holiday dessert, served with whipped cream.

Mother's Coffee Cake

1 cup brown sugar
1 cup butter
1 cup molasses
1 egg
1 cup strong coffee
2 cups raisins
1 tablespoon cloves
1 tablespoon cinnamon
1 tablespoon nutmeg
2 rounded tablespoons soda
4-5 cups sifted flour

Cream butter and sugar; add molasses, egg, and coffee. Sift dry ingredients together and add, with raisins, to creamed mixture, making a stiff batter. Bake in bread pans one hour at 350 degrees. Wrap and season like fruit cake.

It seems that a party of sharpies was driving through the country when they saw a farmer in the field and thought they would poke fun at his rusticity. "Did you see a wagon load of monkeys go by?" asked one of the city slickers.

"Nope," said the farmer, "can't recollect seeing it. Did you fall off?"

1308. The simple sheath everyone loves; make with or without sleeves. Sizes 10, 12, 14, 16, 18, 20. Size 12, 32 bust, sleeveless, 3½ yards of 35-inch. Price 35 cents.

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1547 & 1548. Collared look-alikes for the girls. 1547 is in sizes 10, 12, 14, 16, 18, 20. Size 12, 32 bust, 4¼ yards of 39-inch. 1548 is in sizes 3, 4, 5, 6, 7, 8 years. Size 4, 1⅞ yards of 39-inch. Two patterns, 35 cents each.

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1361. Slimming princess lines on a charming bare arm style for women. Bolero included. Sizes 36, 38, 40, 42, 44, 46, 48, 50, 52. Size 38, 40 bust, dress, 5¼ yards of 35-inch; bolero, 1¼ yards and ⅞ yard contrast. Price 35 cents.

1539. Undercover story for half-sizers. Neat slip and pantie combination. Sizes 12½, 14½, 16½, 18½, 20½, 22½, 24½, 26½. Size 14½, 35 bust, slip, 2⅞ yards of 39-inch; pantie, 1¼ yards. Price 35 cents.

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POULTRY

by Joe W. Sicer

From the poultry mail bag

Lights, dirt floors, wet litter, and coccidiosis vaccinations are problems of concern.

I AM building a new chicken house for egg production and want to know about proper lighting. Which ray of light in relation to the spectrum stimulates the pituitary glands of the hens? Can fluorescent lighting be used?

I note that one 40-watt lamp is recommended for each 50 hens. Since one 200-watt lamp will give more foot candles of light than five 40-watt lamps, could the larger lamps be used? At what height should the lamps be mounted?

Indiana **D. R.**

The rays of light which stimulate the pituitary glands of layers and thereby encourage egg production are the red rays of the visual spectrum. Approximately 25 per cent of the rays given off by ordinary filament-type lamps are in this red range.

With fluorescent lamps, the rays generated depend upon the kind of tube used. Some types of fluorescent tubes give very little of the red rays. The so-called "soft white" fluorescent tube gives about 25 per cent of its rays within the red range. The pink fluorescent will give as high as 44 per cent of its rays in this range.

An even distribution of light is desirable in the laying house. For that reason, it is probably better to have a larger number of medium-wattage lamps than a few higher-powered lamps.

An intensity of light equal to one foot candle at the level of the chickens is necessary for the desired stimulation to the birds. A higher intensity of light does not harm the chickens, neither does it give greater stimulation.

As the height of the light above the chickens increases, the intensity of the light diminishes rapidly. Therefore, you want the lights no higher than necessary to get them out of the way and give enough spread of light to get a reasonably uniform intensity over the entire area.

Usually it works best to install the lights directly over the feeders and waterers since this is where the birds will be most often. Good reflectors also will be advantageous.

Fluorescent lighting can be used in poultry houses but the economies are not nearly so great as many are inclined to believe. It is true that at ordinary room temperature of 70 to 80 degrees, the fluorescent lights will operate at considerably higher efficiency than will incandescent lamps. However, at lower temperatures, such as prevail in poultry houses during the winter, this efficiency is greatly reduced.

Any movement of air which helps cool the tube faster would still further reduce its efficiency. In actual practice there is probably not a very large saving in cost per foot candle of light delivered.

Fluorescent lamps should last much longer than incandescent lamps but this also is at least partially offset by the fluorescent lamps' greater cost of installation.

We have a dirt floor in our laying house. Is there any special kind of dirt that can be used, or anything which can be mixed with the dirt to keep the chickens from digging holes in it?

Illinois **K. L.**

Some poultrymen have found it very worthwhile to cover their dirt floor with two or more inches of coarsely ground limestone at the time the house is being readied for the new flock of pullets. The grind is not quite so fine as that used when liming land but with whatever fine material that is naturally present left in.

The limestone is inclined to pack and is not so easily scratched through. When cleaning, some of the limestone will be removed and should be replaced.

I had a lot of trouble this past winter with wet litter. Recently I was told that phosphate 0-20-0 would keep dampness and fumes out of a chicken house. Would this harm layers?

Missouri **R. B.**

Superphosphate scattered through the litter and over the droppings in the roosting racks helps somewhat in reducing damp litter and is decidedly helpful in holding down ammonia fumes.

The phosphate unites chemically with the nitrogen in the poultry manure, thereby preventing much of its loss in the form of ammonia. If your land needs phosphate anyway, liberal use of phosphate in your poultry house would give you double use of this material. When used at the rate of one pound to four or five square feet of floor space, it will not harm layers.

Phosphate cannot be depended upon to solve the problem of wet litter in a poultry house. In most cases, wet litter is basically the result of too little ventilation, improper management of the litter, or lack of enough heat conserved through good insulation.

Is the new practice of vaccinating young chicks for coccidiosis a good thing? Will it prevent trouble when the pullets get older?

Indiana **K. C.**

Chickens can develop a resistance against coccidiosis when exposed to the causative agent such as is done in coccidiosis vaccination. To keep the disease under control, an essential part of this program is the use of a satisfactory coccidiostat in the feed at a preventive level following vaccination.

The program as sometimes practiced has this drawback: There are eight different species of coccidia. At present, only two of these are widespread and of serious economic importance. At least one commercially made vaccine contains five different species of coccidia. If you have never had but two different species on your premises and you vaccinate with five, you may have to contend with all five species in the future.

SWINE

by F. J. Giesler

Pelleting the swine ration

Research shows certain advantages to pelleting the high-fiber ration. However, cost must be considered.

PROGRESSIVE livestock men have shown us that in mature animals palatability of a feedstuff is one of the most, if not the most, important single factor in feed consumption. If this is the case in mature animals, how much more important is palatability to the young pig?

Many factors such as taste, smell, and vision are concerned with the palatability of a feed. Therefore, feed companies have furnished a great deal of leadership in developing feedstuffs that have many different sizes, shapes, forms, colors, and flavors.

Today pelleted feeds incorporating these ideas are being widely used. Pelleted creep feed rations are a common item for sale.

Advantages . . .

Pelleted rations seem to have these advantages:

1. Pigs will eat more.
2. Feed efficiency is increased.
3. Less feed is wasted.
4. Dustiness of feed is eliminated.
5. Bulky feeds, such as oats, are considered to be somewhat unpalatable in swine rations. By pelleting rations, their density is greatly increased.

Since feed costs represent 75 to 80 per cent of the total cost of hog production, efforts must be continually directed toward reducing this cost.

Testing stations throughout the corn belt have consistently shown improvement in feed use by swine. Some of this efficiency has come about through new nutritional "know-how" and proper application of this knowledge to feed practices.

The way one might reduce this total expense is to pellet mixed rations. From experiments conducted at Michigan State University, Montana State College, and North Dakota Agricultural College, it has been found that this method reduced the amount of wasted feed and increased gains.

Michigan State University used crossbred pigs, while Montana State College used 180 crossbred and purebred pigs of Duroc-Montana No. 1 breeding. At Montana the hogs were divided into two equal groups. One was fed a pelleted ration, while the other was fed the same ration in ground or meal form. This ration was composed principally of small grains, barley, wheat, and mixed feed.

The pigs were self-fed in large pens of similar size and had access to identical self feeders and waterers. A ration containing 20 per cent protein was used until they reached an average weight of 75 pounds. From 75 to 125 pounds, the ration was reduced to a 16 per cent protein level, which was further reduced to 14 per cent beyond the 125-pound weight.

The pigs fed a pelleted ration gained an average of 1.35 pounds per day from weaning to a market weight of 214 pounds 12 days sooner than those fed meal. Pigs fed the meal gained an average of 1.23 pounds per head daily and required 474 pounds of feed per 100 pounds of gain.

Although the pelleted feed cost 10 cents more per hundredweight, the feed cost for the pellet fed pigs was $1.42 less per 100 pounds of gain than for the meal fed pigs.

Michigan State University, studying a similar type of feeding, reported that pigs receiving the pelleted ration gained 23 per cent faster than the pigs receiving the meal. The feed efficiency of their two groups showed that the meal fed group required 18 per cent more feed per pound of gain than the pelleted fed pigs. The pelleted fed group averaged $1.51, or 11 per cent cheaper gains per hundredweight than the meal fed group.

North Dakota State College found that pelleting represented an estimated saving of 30 per cent feed. In addition, the pigs which were fed pellets gained about one-tenth of a pound per day more than those fed the ration in meal form. They conclude that pelleting of feeds may be worth 10 to 40 per cent of the value of feeding, depending upon the feeding conditions.

You can make a better decision based on these trials as to whether to buy meal or pelleted feed. When the cost of pelleting does not exceed the increased efficiency in feed use, then you can well afford to pay the extra cost of pelleted feed.

Producers who buy a limited amount of supplements must balance the cost of grinding and mixing home-grown grain with purchased supplements against the cost of hauling and having feed fortified and pelleted. Future studies may give us the reasons for pelleted feeds increasing gains and improving efficiency in swine feeding.

Massachusetts Bang's free

The 16th state in the nation to be declared modified-certified, brucellosis-free is Massachusetts which reached this milestone, March 31. Fifteen other states, Puerto Rico, and the Virgin Islands previously achieved certification in the fight against this costly cattle disease. In addition, 816 counties in 30 other states also have been certified.

For a state to qualify for certification not more than 1 per cent of all cattle and not more than 5 per cent of all herds can be infected with the disease.

States previously certified were Connecticut, Delaware, Maine, Michigan, Minnesota, New Hampshire, New Mexico, New Jersey, North Carolina, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and Wisconsin.

Nationwide, in the five-year period from 1954 to 1959, the percentage of blood tested cattle reacting has been slashed in half, from 2.6 per cent in 1954 to 1.3 per cent at the end of February 1959.

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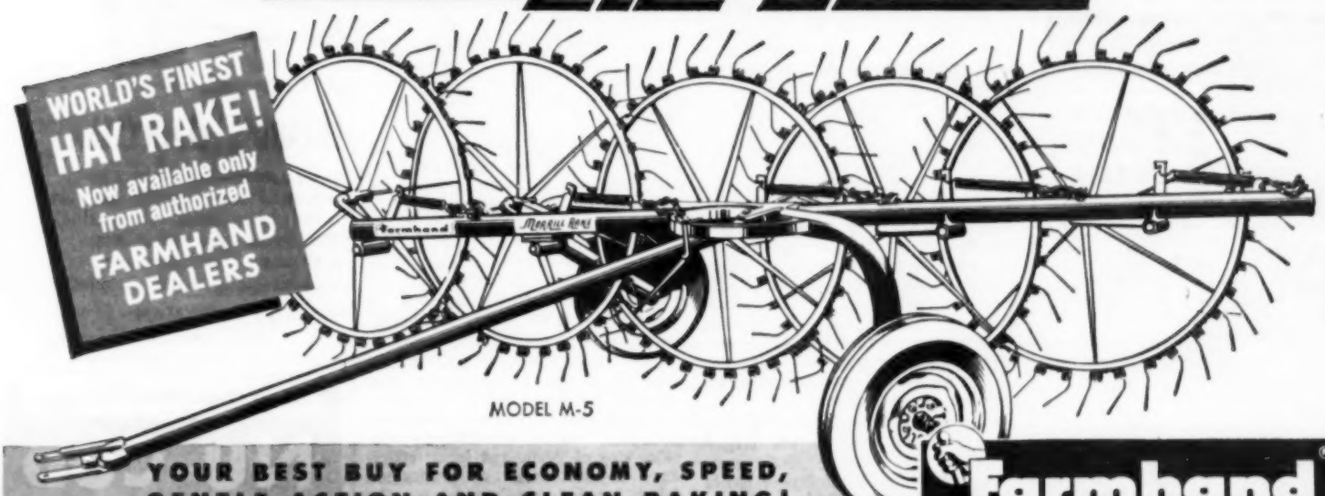

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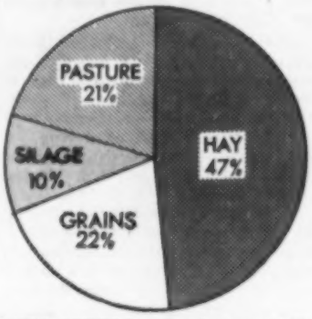
How much does it cost to produce milk?

(Continued from page 545)



FEED SUPPLY came from sources indicated above. Note 78 per cent came from forage and pasture. Of cost, feed accounted for 46 per cent.

year, which resulted in depreciation on the cows of $357 per farm. This figure amounted to $13 per cow. This item was 4 per cent of the total costs.

The other costs including milk hauling, equipment use, interest on investment in cows, breeding fees, and miscellaneous, were each 3 per cent or less of all costs of milk production.

The total costs of feed, labor, and all other items amounted to $308 per cow, or $4.54 per 100 pounds of milk. The credits for calves and manure amounted to $18 per cow. Thus, the net cost of production averaged $290 per cow, or $4.27 per hundredweight of milk.

Ways to reduce costs . . .

Unit costs of milk production showed a close inverse relation to labor incomes. The 86 farms out of the whole group of 556 with costs of less than $3.50 per 100 pounds of milk made an average labor income of about $3,300. As unit costs increased, incomes declined sharply. With costs of $5, the labor income was practically zero; with costs of $6 or more, large losses resulted. Obviously, such high-cost farms are being crowded out of dairying.

The rate of milk production per cow, uniformity of milk production through the year, size of herd, and amount of milk sold per man were all found to be important in lowering unit costs of production.

The rate of milk production per cow had a pronounced effect on the cost of producing milk. With less than 5,000 pounds of milk sold per cow, the average cost was $5.80 per 100 pounds. But, with 9,000 pounds or more sold per cow, the cost was only $3.55. Costs of the intermediate groups were in between these extremes.

Unit costs decreased as milk per cow increased, despite the larger proportion of winter milk produced. The somewhat larger herds on the farms with high-producing cows accounted for part of the reduction in costs.

It is widely recognized that it costs less to produce milk during the pasture season than in the winter. But, the annual cost is lower on farms that produce milk the year round than on those that produce milk mostly in summer.

In this study, average costs were only about $4 per 100 pounds on farms with 40 per cent or more of the milk sold in the period October to March, as compared to about $4.75 on farms selling 30 per cent or less in these winter months. Up to the limit of about 50 per cent, the higher the proportion of milk sold from October to March, the lower the cost per 100 pounds. The reduction in cost is due mainly to the higher level of milk per cow and to the more efficient use of labor.

The larger the herd, the lower the cost of producing milk. In the relatively few herds of less than 10 cows, the average net cost was nearly $5.50 per 100 pounds, and even in the herds of 10 to 19 cows, the cost averaged $4.69. But, in the largest herds, the average cost was below $4.

The fact that milk production per cow tended to increase with size of herd accounted for some of the reduction in costs shown.

The amount of milk sold per man (a measure which reflects all three of these factors) had a powerful effect on unit costs. Low output of milk per man meant a high cost of milk. Conversely, high output per man resulted in a low cost.

An average cost of $6.25 per 100 pounds was found on the farms from which less than 50,000 pounds of milk were sold per man. As the outturn of milk per man increased, the cost per unit went down rapidly (see chart on page 545).

Average costs were only about $3.40 on the farms which sold 200,000 pounds or more per man. Such a large volume of milk was obtained from the combination of moderately large herds and relatively high production per cow.

The description of dollar-and-cent costs obviously apply to the particular region studied, but these relationships of milk production per cow, season of milk production, size of herd, and labor efficiency to unit costs of production have general application to the commercial dairy regions of the country. **THE END**

Average milk production costs per cow
556 New York dairy farms, 1955-56

Items	Per cow Amount	Per cow Value	Per cent of total
Costs			
Concentrates			
Homegrown	299 lbs.	$ 8.49	
Purchased	1,503 lbs.	55.60	
Total	1,802 lbs.	$ 64.09	
Hay	3.0 t.	$ 50.38	
Other dry forage		.66	
Corn silage	1.7 t.	13.33	
Grass silage	0.5 t.	3.28	
Other succulent feed		0.51	
Pasture, regular		6.92	
Aftermath pasture		3.48	
Total feed		$142.45	46
Labor on cows	118 hrs.	$ 88.51	29
Building use		$ 15.91	5
Depreciation on cows (net)		13.26	4
Milk hauling		9.82	3
Equipment use		8.91	3
Interest on cows		9.73	3
Breeding		6.00	2
Bedding		3.50	1
Miscellaneous		11.24	4
Total costs		$308.33	100
Credits			
Calves		$ 7.99	
Manure		10.50	
Total credits		$ 18.49	
Net cost		$289.84	

Farmer: "Can you milk cows?"
City boy: "Yes, sir."
Farmer: "All right; go into the barn and milk all 30 of those cows."

A little later the farmer checked to see how the boy was doing and was met with this comment, "I've milked 20 of 'em, sir, but don't you think I ought to have a bucket?"

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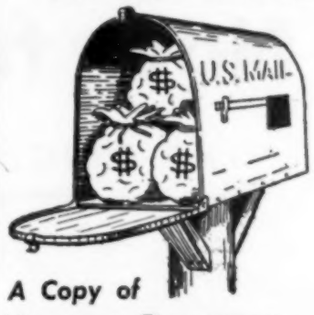

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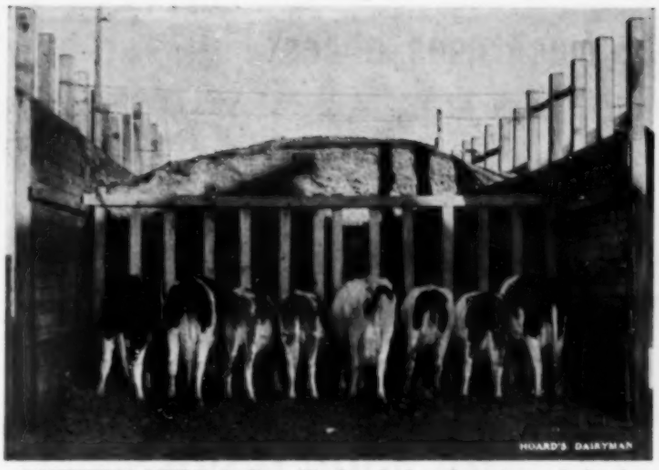


CAFETERIA-STYLE feeding. Wooden feed rack rests on 4- by 4-inch rail; chain holds it in place. No slanting braces are needed.

Bunker silo works in California

In areas where the climate is warm and dry, these silos have been growing in popularity.

by Lee Elam

GROUND-LEVEL bunker silos have become a major advancement in the dairy feeding picture in California.

One self-feeding silo that has caused statewide attention and brought visitors from other states, is on the Henry Kloss dairy at Franklin, Calif. This dairyman's 150-ton capacity silo sets in his main holding and feeding corral where the animals also have a choice of hay.

The silo has generated a lot of attention because of the way it is constructed. The walls are 8 feet high, 48 feet long, and are set 20 feet apart with an opening at both ends. Wall boards are 2-by 6-inch tongue and groove fastened to 6- by 6-inch posts set 4 feet center to center in the concrete floor and 3 feet into the ground. The silo floor slopes 2 inches to each 10 feet both ways from the middle to the ends to insure good drainage.

Kloss uses a wooden rack type feeder at each end. This feeder is not moved ahead at free will by the cows; it is designed to limit the feeding rate. The rack actually rides on rails on the walls. The upper crossboard of the rack extends enough so that it sets on top of 4- by 4-inch rails which are mounted on the walls exactly parallel to the floor. This keeps the bottom of the rack always in touch with the floor.

To control the forward movement, adjustable chains are attached to both upper corners of the rack and are of sufficient length to go around the wall posts that extend above the wall. Adjustments on the chain make it possible to regulate the forward movement of the rack at about 10 inches.

No side bracing . . .

To lessen pressure strain on the walls, a ½-inch cable is tied across the top every 8 feet. One thing about this structure that is attracting considerable attention is the lack of extended side bracing.

Kloss has allowed 6 inches of feeder space per cow at each end of the silo. This feeder space lets him feed 80 animals at the silo. Animals receive silage only after milking, but if they had access to it 24 hours a day, he could feed at least 120 animals.

Editor's Note: Bunker-type silos are more practical in the Southern and Western states. There is always a problem in the humid regions with mud during the spring and fall months. This necessitates a concrete bottom and approach aprons which runs cost up to and beyond the cost of an upright silo. There is also a problem of freezing in the Northern states. This bunker-type silo is definitely more practical and usable in the drier, warmer climates.

Don't omit milk when reducing

Don't omit milk products when you want to reduce.

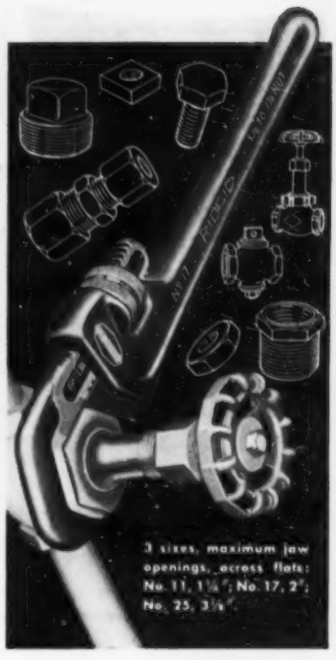
Many women and girls believe that milk is fattening, so they omit it from reducing diets. But this is a mistaken idea, since all nutritionally sound reducing diets include milk and milk products, says Harriet Barto, University of Illinois dietician.

Only diets supplying more calories than your body can use are fattening—not any one food. Miss Barto says it is a common food fallacy to consider that milk is a "fattening" food. It is not.

In fact, many cuts of meat contain two or three times as much fat per serving as a cup of whole milk.

Research studies show that milk furnishes more calcium than any other food. In addition, all the vitamins that are known to be needed by man for good health are found in milk. And milk also furnishes high-quality proteins.

In planning a reducing diet, include foods that are rich in minerals, vitamins and high-quality protein but low in carbohydrates and fats. Since even whole milk has less calories than many other good sources of protein and vitamins, be sure to include milk in low-calorie diets, says Miss Barto.



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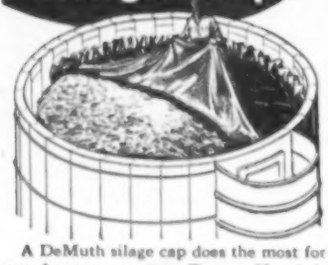

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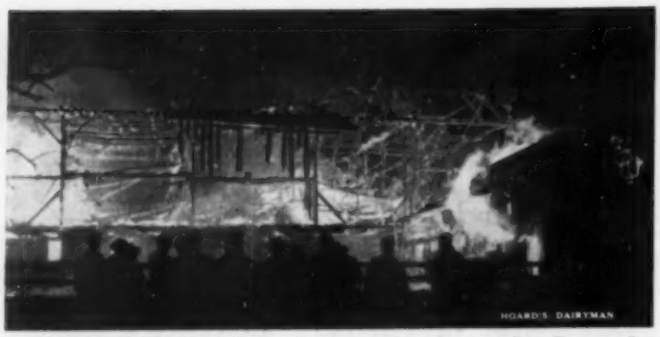

TOO LITTLE, TOO LATE and a tremendous loss results. Barn and nearby buildings going up in flames because of no fire protection.

Do you have fire protection?

Rural fire fighting equipment should deliver high pressures for fogging. Here are some guides for setting up all rural fire districts.

by Bill Thiesenhusen

NO ONE ever expects a fire; if he did, he'd prevent it." In those words, Randall Swanson, farm safety specialist at the University of Wisconsin, summed up the most dangerous characteristic of a constant threat to our country's farms — surprise.

Every year over $100 million worth of homes, livestock, barns, and equipment are destroyed in the minutes before bewildered farmers realize their property is ablaze.

Nearly 3,500 farm people are burned to death each year.

Swanson says that two-thirds of our total investment in dairy farming is subject to destruction should a fire break out.

Realizing this, more farmers now than ever before are becoming "fire conscious." In some sections of the country each farm in a fire district is numbered for protection. Here's how the numbering system works:

All farms on one road are given consecutive numerals which they are asked to post so the figure can be seen easily from the road. Luminous tape makes them visible at night on telephone poles, mailbox posts, trees, or special signs. This numeral corresponds to one on the map of the district held by the fire chief, and the one that is printed on a card with the telephone number of the fire department and posted near the farmer's phone.

Farmers threatened with fire give their numeral when they call the fire department. This makes it unlikely that trucks will come to the wrong farm. Vague, general descriptions at the time of emergency often cause costly delays.

"Under ideal conditions, each township should have its own fire fighting equipment. Often practically three or four need to be serviced by one department," Swanson says.

In cities one square mile in area, equipment that is two minutes away from the furthest property can be afforded. But frequently in the country there are only six sets of buildings in a square mile.

Limit — four townships . . .

When runs of more than 15 miles have to be made, fire protection is inadequate. The maximum area one fire department can possibly serve is four townships, or 144 square miles. The department should be located as near to the center of the district as pos-

WELL-EQUIPPED FIRE FIGHTERS held loss to minimum as fire was stopped within minutes and seconds of arrival of fire company.

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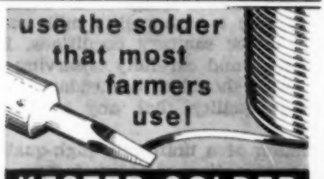

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sible. This means trucks will need to go only 12 miles for the farthest possible fire.

Since most farms are short of water, each department should be equipped to carry 400 to 500 gallons to the fire immediately on call. More water will slow down the tank at a time when haste is vital. Both the weight and shifting of the water add minutes to the fire run.

Each community should be organized for protection so neighbors bring water and form a "bucket brigade" as soon as they realize a fire has broken out.

Water supplied as a stream, however, isn't the answer either. The degree of cooling which water supplies to a hot surface depends on its surface area. Water supplied as a stream has a very small surface area, but when put under high pressure and applied as a fog it will go 20 times further.

Fog takes less water . . .

Producing fog, however, requires special equipment. The truck needs to be equipped with a pump that can deliver 800 to 850 pounds of pressure so that the required 500 to 600 pounds can be available at the ends of the 150-foot reels of heavy-duty hose. Two hoses should be supplied with fogging nozzles on each.

A piston pump will do the most economical job. This pump will need no priming; it is ready to work as soon as the truck gets to the fire.

Many cities with unlimited water supplies have purchased low pressure equipment. But farm communities don't have enough water to go around. They need to make the best use of every bit they have. When 1,500 gallons are applied under 600 pounds of pressure, it is worth at least 15,000 under low pressure.

Rural fire fighting equipment should also include two 40-foot aluminum extension ladders in 20-foot sections.

Total cost to the community of the high pressure tank, truck, and all equipment will probably be about $11,500. The auxiliary unit, which may be an old, large-capacity gasoline tank, shouldn't cost more than $1,000, including truck.

Insurance rates reduced . . .

When adequate protection is provided, fire insurance rates may be reduced. In some cases, credit rate for a farmer depends on his having a telephone and an adequate fire department. Additionally, a farmer may get an endorsement under his insurance in which the company agrees to pay the cost of any run made to his farm by a fire truck.

There are two main kinds of fire fighting organizations. Under one, farmers band together to get service from a nearby village. Under the other, the department is tax supported.

But whichever is the case locally, the penalties of not having adequate fire protection or not being acquainted with that which is available, may some day be the difference between farming and not farming; yes, even between life and death.

"No one ever expects a fire," but if he knows his fire department and how to use it, he has won half the battle.

In the next issue, we will discuss what you should do between the time a fire is discovered and when the fire department arrives to take over.

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YOUNG DAIRYMEN — *Careers in agriculture* — No. 55

Is cheesemaking for you?

Yes, if you have good health and the ability to learn and work hard, you can become a top-grade cheesemaker.

by LeRoy E. Luetscher

THE AUTHOR preparing to mill cheddar cheese in newly-remodeled cheese factory of the Manawa Dairy Company, located in Manawa, Wis.

HOW many small boys have you approached with the query, "What are you going to be when you grow up?" I have no doubt that of the numerous times I answered that question, never was the reply, "A cheesemaker." But, today finds me working hard to make a success of that career.

Many young men go into the dairy manufacturing operation after completing a four-year-long course, or at least a short course at some institution of learning. Some, however, learn the trade by apprenticeship, working along with their dads. Others learn by picking up jobs in a dairy plant or cheese factory.

Began at the bottom . . .

The latter way was mine, doing everything from dumping milk, making butter and cheese and packaging the products, to cleaning the boilers and scrubbing cans.

Three years later when the opportunity came, I took the 12-week dairy short course offered by the University of Wisconsin.

There are three things to your advantage in this business.

1. Experience and an acquaintance with an actual, practical plant operation.

2. Education to understand the mechanics and technicalities connected with dairy manufacturing.

3. Training in operations where the highest all-around standards are maintained.

Each factor is necessary to complement the others.

Besides, and above, these are the personal attributes that contribute to success in any field: sincerity, friendliness, punctuality, integrity, ambition and unfaltering drive, the willingness to make decisions and stand behind them, not expecting anything to be done that you are not willing to do yourself, the desire to improve and be a keen student of your profession.

I feel that the manufacture of high-quality dairy products demands the ultimate in cleanliness and sanitation. Clean and sanitary plants, equipment, and employees are a must.

There is a place in this industry for makers of quality cheese for anyone who is interested. The advancement in wages and position range from average to top rate, depending, of course, on the individual.

In some cases, cheesemakers are paid by the pound of cheese manufactured. The rate is commonly 1 to 1½ cents per pound. Salaries, I would estimate, range from $3,200 to $4,800 per year.

Is it necessary to work more than an 8-hour day, a 40-hour week? To be just a cheesemaker who turns out a vat or two of cheese, the answer could be "no." However, to those who aspire to attain the position of operating a large cheesemaking setup, the answer would have to be "yes." I put in as much time as is necessary to do what I consider to be a good job.

Cheesemaking itself is for the most part a "stay-at-home" job. However, there are opportunities for traveling to inspect new designs in equipment or labor- and time-saving setups, attending meetings pertaining to the industry to advance the sales of your product, and others as the situation provides.

Producing a quality product . . .

When the milk arrives at the factory it is weighed, sampled for butterfat content, and quality cooled. Prior to manufacturing, it is pasteurized and put into the vat.

The steps we follow in making cheese are shown in the chart.

After the cheese has been made, it is put into hoops of the desired form and then pressed. The next step is to dress and paraffin it or wrap it. Then the cheese is ready to be put into storage for the length of time needed to give the desired age.

By starting with a high-quality milk, manufacturing it under sanitary conditions, following each step, and carefully observing all details, the result should be a cheddar cheese of the highest quality that any consumer could expect.

The production of a uniformly high-quality cheese is a combination of many factors. A change in any one can result in an inferior product. Any cheesemaker will tell you how readily these things can happen.

It is this "you never can be certain of tomorrow" aspect that provides a challenging and stimulating nature to my work.

The cheese industry provides many opportunities for your product to be entered in competition. It is very satisfying when your own product takes high honors.

To any young fellow who can bend over a vat, whose health permits working in humid conditions, who possesses some administrative and managerial abilities, who is not afraid of work and, most important, who thinks he'd like this type of a career, there is a good future in dairy products manufacturing.

THE END

MAKING RECORD

Milk in vat	10,000 lbs.	Fat in milk	3.5%
Pasteurized 160° F. for 30 sec.		Acid in starter	0.7%
Cheese moisture	37%	Cheese yield	945 lbs.

STEPS IN MAKING	Time of each step	Minutes to next step	Temperature	Acid %	Rennet Test	COMMENTS
ADD STARTER	0:15	20	89°	.10	3¼	70 lbs. strained
ADD COLOR	0:45	15	87°	.10	3¼	10 ounces
ADD RENNET	9:00	15	86°	.105	3¼	30 ounces
COAGULATION	0:15	15	86°	No test	No test	Vat covered
CUT	0:30	15	86°	.10	HOT IRON	¼" knives
STEAM ON *	0:45	30	86°	.10	No test	Slowly by schedule *
STEAM OFF *	10:15	45	102°	.103	No test	Slow agitation
SETTLE CURD	11:00	30	102°	.12	Trace	6" to 10" deep
END DIPPING	11:30	15	102°	.14	1/16"	10" trench
PACK	11:45	Turn curd every 15 minutes	101°	.17	1/16"	Blocks 9" wide
FILE TWO HIGH	12:30		99°	.25	⅝"	Cut blocks in half
FILE THREE HIGH	1:00		98°	.30	½"	Smooth ends
MILL	1:30		91°	.40	¼"	Smooth, silky
SALT	1:50	40	88°	No test	No test	33 pounds
HOOP	2:30	30	85°	No test	No test	All salt dissolved
PRESS	3:00	30	80°	No test	No test	Full pressure in 15 minutes
DRESS	3:30		No reading	No test	No test	Well closed

* COOKING SCHEDULE	Minutes from STEAM ON	0	5	10	15	20	25	30
	Temperature °F	86	90	91	93	96	99	102

The author is a cheddar cheesemaker in Wisconsin.

Safety is just as important as speed in milk filters. That's why Kendall non-gauze milk filters are deliberately designed to give you speed plus strength plus maximum sediment removal.

Filters are too fast when they sacrifice sediment removal for speed . . . as some do. *Clean* milk is the only reason you filter at all . . . and clean milk is what Kendall non-gauze filters give you without waste of time. They give you the highest filtering speed that's practical . . . they won't wash or tear even when you filter extra-large quantities of milk . . . they *always* give you good sediment ratings . . . and *they cost up to 25% less* than top-priced, gauze-faced filters.

Available in disks, strips, rolls, and inline filters.

NEW plastic dispenser only 50¢ from your supplier

For 6" and 6½" disks

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FREE FILTER SAMPLES!

MAIL COUPON

THE KENDALL COMPANY

Kendall Mills Division
Dept. HD59, Walpole, Mass.

Gentlemen: I'd like to try your new filter. Please send me free samples.

Name_____

Address_____

City_____ State_____

Size of filter desired_____

From whom do you buy your filters?_____

HANDY HINTS

PORTABLE BRUSH BRACE

Here is a brace that can be attached to any large garage or stable brush. It is made to fit on either side of the brush and can be transferred from one brush to another.

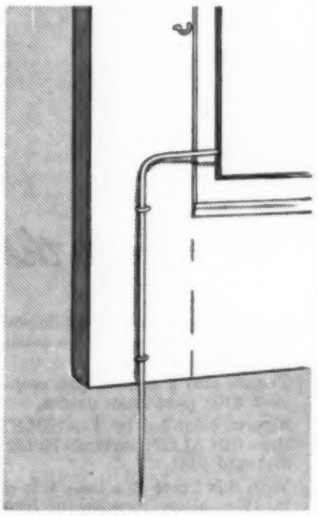
The brace consists of 3 pieces of band iron ¾-inch wide (or whatever is available). The two diagonals are 16½ inches long and the counter brace is 11 inches long. The ends of the diagonals fastened to the brush are bent according to the angle of the top of the brush to the handle. Placing one on each side of the handle, they are fastened with screws to the top of the brush (must be centered).

The handle clamp is of 1-inch band iron. The length is determined by the diameter of the brush handle. The band iron is bent one inch from each end and these ends are fastened with a nut and bolt. Using a vise, the nut and bolt can be tightened so that the clamp fits tight on the brush handle.

The two diagonals are fastened to the bottom of this clamp with a large countersunk head bolt (see smaller drawing).

Wisconsin NEIL S. RASMUSSEN

DOOR STOP



To make a door stop, for any door opening outward, use a 2-foot long brass curtain rod (or any iron rod). Bend one end of the rod to an L-shape. Sharpen the other end to a point and slip the rod through two fence staples or screw eyes fastened to lower part of the door.

To hold the door open, push pointed end into the ground. When not in use, raise rod and loop bent end over a hook placed higher on the door.

Minnesota ANN ZAWISTOWSKI

"I saved more than 25 tons of corn silage last year by using DURETHENE® film!"

says William Pryce, Rt. 1, Brodhead
Green County, Wisconsin

Bill Pryce built his trench silo last year, and covered it with DURETHENE film. He figures the 25 x 55-foot silo cost him only $79.00—including digging. *The results:* he saved over 25 tons of corn silage because spoilage losses were very small. Bill also used DURETHENE film to cover a temporary corn crib.

DURETHENE film is ideal for bunker or trench silo covers, or for an upright silo cap. You will find it has many uses on the farm. Lightweight DURETHENE film is available in widths up to 40 feet, 100 feet long in black or clear. Write for our free booklet, "DURETHENE Polyethylene Film for Farm and Home Use," and include the name and address of your local dealer. We'll see that he has plenty of DURETHENE film on hand when you need it. Koppers Company, Inc., Plastics Division, Dept. HD-59, Pittsburgh 19, Pennsylvania. DURETHENE film is another fine product for the farm from Koppers Company, Inc.

Durethene.
POLYETHYLENE FILM

KOPPERS

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Name_____

Address_____

City_____ State_____

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35 cows, one month	2.50
Weekly Records—Two Milkings	
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20 cows, one week	3.50
30 cows, one week	4.00
For Three Milkings a Day	
15 cows, one month	2.00

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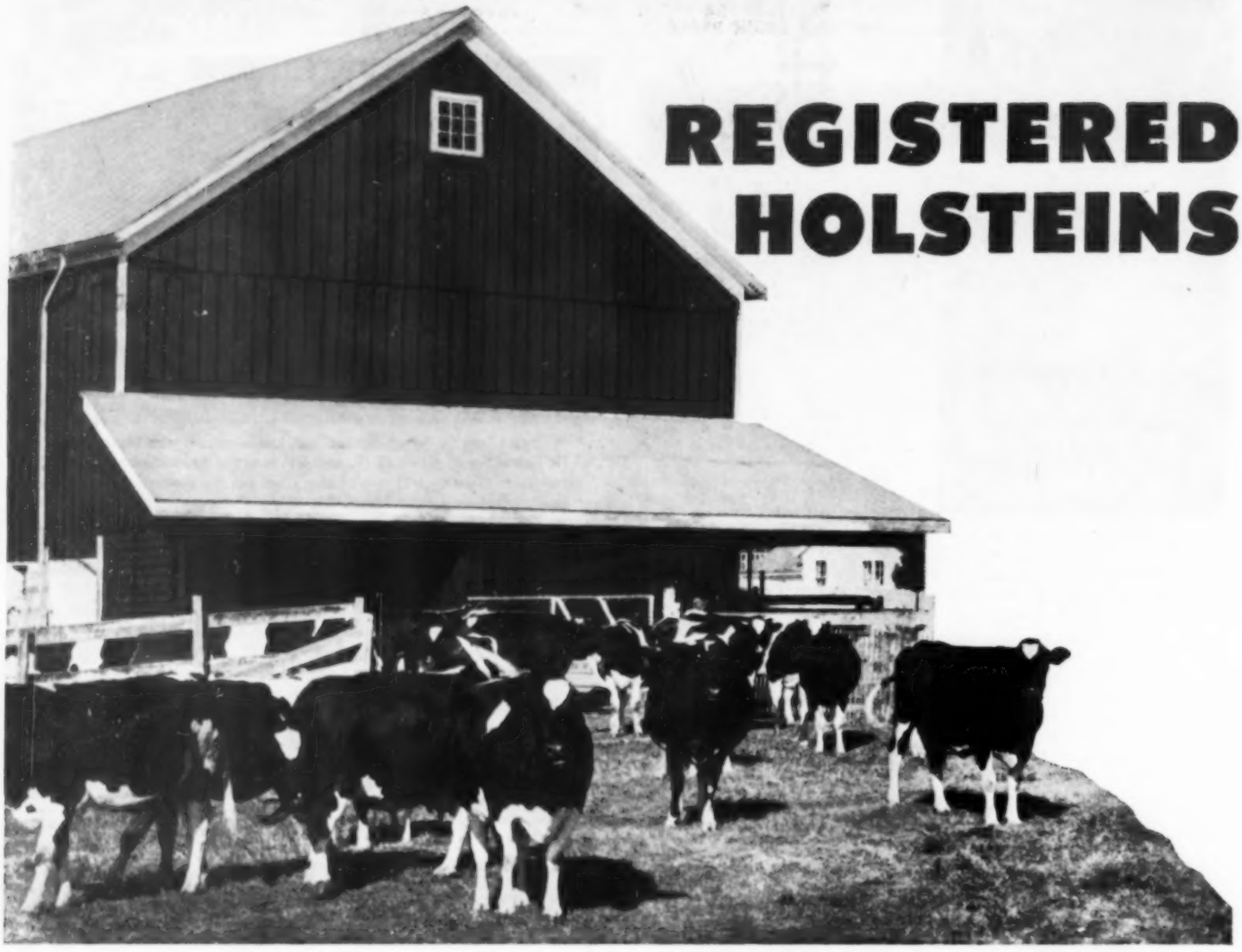
For PEAK production, pick



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Registered HOLSTEINS *Breed of the Times*

fit the farm . . . fit the market

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA • BRATTLEBORO, VERMONT

Does QUACK GRASS manage your farm?

It is a poor manager. It increases costs, lowers yields, and also reduces your crop choice, but this pest can be controlled.

by K. P. Buchholtz

FIELD CORN seeded down with quack grass. Infestations as bad as this require constant cultivation and a dry year.

EACH spring you see many examples of fields where quack grass has the upper hand. In such fields this weed determines how good a crop and what kind of a crop will be grown.

When this happens, the operator of the farm is greatly handicapped. His first job is to reduce the growth of this weed so that it will not interfere with normal cropping practices. Until he does this, he really doesn't manage his farm; the quack grass does.

No one intentionally plants quack grass, but in some way this weed spreads from field to field and from farm to farm. The greatest spread seems to be in seed oats. Seeder box surveys have shown that a large number of the lots of oats being sown are infested with seeds of quack grass.

Many of these lots of seed have been cleaned, but the cleaning job was not done carefully enough to remove the quack grass seeds. Careful cleaning and close inspection of the cleaned grain is necessary to prevent spread of quack grass in this manner.

Quack grass is often spread in manure and bedding. The seeds mature rapidly. If the quack grass has headed when the hay is cut, some of the seeds are likely to be viable. These will find their way back to the fields when the manure is spread.

Buying quack grass-infested hay is an excellent method of introducing this weed onto the farm.

Considerable spread of quack grass within a field results from the rhizome pieces. These can be dragged about by tillage implements. Quack grass can be introduced to clean fields if tillage implements are not cleaned when traveling from one field to another.

Quack grass can be controlled by cropping, tillage, and by chemical control methods. Frequently, combinations of the three are used.

The choice of methods will depend on weather conditions, extent of infestation, costs of materials, and cropping practices on the farm.

Crops to use . . .

Corn is first choice for planting on quack grass-infested fields. Corn seedlings are vigorous and stand considerable competition. The spaced rows allow this crop to be cultivated for several months after planting. During this time the weed can be thinned out and a fair crop of corn should result.

If the corn is harvested for silage some additional tillage can be given the field during the late fall months. Most complete control of quack grass will result when corn is planted for two successive years on the same area.

A number of other row crops such as soybeans, sugar beets, and potatoes can be planted on quack grass-infested land. However, the seedlings of these crops are not as vigorous as is corn and it is harder to thoroughly cultivate them.

Smother crops such as Sudan grass, buckwheat, millet, and closely-drilled soybeans are sometimes sown on quack grass-infested land. These crops will do best when planted late in the spring on land where the quack grass already has been weakened by tillage. If the crops get ahead of the quack grass and produce a dense shade the weed will be controlled.

Usually early-sown crops such as oats, barley, wheat, and peas do very little to reduce the infestation of quack grass. If the infestation of the weed is heavy when the crop is planted, yields are certain to be reduced. The grain harvested from such fields, oats in particular, will contain a large number of quack grass seeds. It should not be used for seed unless it is cleaned very carefully.

When to use tillage . . .

Tillage methods for controlling quack grass have been known for many years. Usually lack of success is not due to failure of the method, but to failure to follow details properly.

Quack grass can be controlled by exposing the rhizomes and roots to drying during warm, dry weather. The best implement for this job is a heavy-duty, spring-toothed cultivator. Frequent tillage is necessary to expose all roots. In dry weather cultivate at least once a week.

Don't waste favorable weather by waiting for leaf growth to start again. Late summer usually is the best time for such tillage for the weather is warmer and it is likely to be dry.

This tillage method doesn't work in seasons when the weather is wet.

Tillage also may be used to remove the top growth. This reduces the food reserves stored in the rhizomes and weakens the weed. To kill the weed, the tillage must be repeated whenever leaf growth appears. During the spring months regrowth is rapid and you may need to cultivate every 7 to 10 days. Controlling quack grass by this method of tillage may take as long as three or four months.

Chemicals have a place . . .

In many circumstances chemicals may be more convenient than tillage for controlling quack grass. Chemicals reduce the need for tillage and in some instances are no more expensive. The effectiveness of chemicals is strongly influenced by weather, soil conditions, and cropping practices. For best results with chemicals, the suggested applications must be modified to conform to local conditions.

Dalapon can be applied to control quack grass in either the fall or the spring. In the fall, from 8 to 12 pounds per acre should be applied when the quack grass has at least a fair leaf growth. It is desirable to apply the chemical to the foliage but this is not essential if rain occurs soon after treatment.

Kill will be improved if the area is torn up with a heavy disk or a spring-toothed cultivator and left rough over winter. Crops sown in the spring on areas treated early in the fall are usually not affected, if rainfall is normal during the fall, winter, or early spring.

Dalapon also can be applied as a spring treatment. In this case from four to eight pounds per acre should be used. Treatment is probably best made early in the spring. At this time, foliage has not developed but the early treatment date is more important than good growth of foliage.

Delay plowing or other tillage until a rain has fallen to leach the chemical into the surface soil.

Wait four weeks . . .

Do not plant corn or other susceptible crops on areas treated with dalapon sooner than four weeks after treatment. The residue of dalapon in the soil disappears rapidly when the soil is warm and moist. When conditions are cool and dry, the interval between treatment and planting must be longer, for the residue disappears more slowly.

Soybeans and other types of beans are more sensitive to dalapon than is corn.

Amino triazole has possibilities for use in controlling quack grass. The relatively high cost of this chemical will limit its use to patches of quack grass. Applications of four pounds per acre should be made when the grass has developed a good leaf growth but before heading has occurred. Applications can be made in either the spring or in the fall. Thorough tillage or plowing two or three weeks after treatment is essential for good control. Best results occur on fertile soils or following fertilization of the sod with nitrogen to ensure dense shoot growth.

Crops may be planted as soon as the soil preparation is complete. Amino triazole leaves little or no toxic residue in the soil.

It is best to prevent quack grass from becoming established on your farm. If it does become established, you can control it before it becomes serious. If you don't control it, quack grass will limit your choice of crops, increase your production costs, and reduce crop yields. You can't afford to have quack grass manage your farm.

The author is a professor of agronomy, University of Wisconsin.

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FAN WHEELS. Cooling, ventilating, hardrying. Send motor H.P. and fan purpose. You assemble fan. Plans, prices. DICKTON FANS (A) Morgan Hill, California. 6-spl.

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SWEET POTATO PLANTS. Guaranteed. Improved Porticricos, Red yams 200-$1.00; 500-$2.00; 1000-$3.50; 10,000-$30.00. "Vineless" Porticricos, Tennessee Nancy Halls, All Golds, Yellow Yams, 200-$1.25; 500-$2.50; 1000-$4.00; 10,000-$35.00. Free growers guide "Growing Potatoes Everywhere." STEELE PLANT COMPANY, Gleason, Tennessee.

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CENTRAL WISCONSIN DAIRY FARMS 40 to 400 acres with or without personal property. Price with improvements average $100 per acre. PALMER VINGER REALTY, Greenwood, Wisconsin. 7-4

FOR VIRGINIA FARMS write, ROBERT SHOFFNER, "The Farm Broker," RFD 1, Box 311, Charlotteville, Virginia. 8-6

280 DAIRY FARM, all new buildings, barn 36 by 88, steel equipt. concrete silo, milk house, machine shed, chicken house, house with breezeway and garage attached, 8 rooms, full bath, built in cupboards, 44 head cattle (will handle more), beautiful farm, all painted white, 2 wells, on black top highway. $33,500 includes farm, machinery, cattle, feed, crops. $15,000 down balance on milk check. Write for free catalog. JOHNSON REALTY, Marshfield, Wis., telephone Lindsey 1306. 10-3

LAND CONTRACT, 169 acres. Excellent dairy farm with 130 tillable acres, located about a mile from one of Southern Wisconsin's most aggressive cities. Barn is 30x110 with 42 stanchions and includes 200 gallon bulk tank. 10x24 milk house with full bath, two 14x50 cement silos, 14x20 poultry house, 26x60 implement shed, 28x40 heifer barn, 2 cribs. Modern 4-bedroom brick home. $50,000 with about $12,000 down. Personal available which includes 68 head fine cattle and full line of machinery. For further information or appointment contact ROY DERUS, Loganway, Inc., Realtors. Phone Jordan 3-3664, Fort Atkinson, Wisconsin. 9-2

START MILKING! BIG HERD! In same family over 100 years! Money-making 355-acre Wisconsin farm with 40-acre private lake! Also frontage on two other fishing lakes and trout stream! Disabled owner includes 20 cows, 6 bred heifers, 4 calves, purebred Brown Swiss bull, 3 brood sows, milker, 2 tractors, implements, small tools, all hay, grain and silage! 140 acres tillable. 190 wooded contains estimated 400,000 board feet timber. 25-acre pasture. See picture in catalog—good 7-room 4-bedroom home, basement. Second house with 3 rooms needs repair. Summer kitchen. 60-ft. barn with extension. Grade B milk house, several other outbuildings. On all routes, 5 miles town. Immediate income setup at $31,500 complete. New free summer catalog, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Bldg., 220 So. State St., Chicago 4, Ill.

LARGE CENTRAL PENNSYLVANIA farm, 450 acres, 65 acre wheat allotment, 250 acres alfalfa and trefoil, four barns, three houses, new modern tile milk house-office-fitting room, silos, other implement buildings, main highway, excellent milk market, with or without dairy cows and farm machinery. Splendid financing. BOX 271, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 10-2

197 ACRES, land contract, $10,000 down, balance on easy terms, over 160 acres of level, heavy cropland. Barn 32x80 has 35 stalls, barn cleaner, milk tank, attached silo, Butler grain bin, implement shed, heifer barn. Home remodeled with 3 bedrooms, new kitchen, bath, oil furnace, fireplace. Personal available. Price $45,000. Located in Southern Wisconsin near Fort Atkinson. 157 ACRES, land contract $10,000 down. Located 6 miles from Janesville. 125 acres heavy clay silt soil under plow. 30x70 barn with 14x42 leanto, bulk tank, 35 steel stalls, cups, silo, 9-pen hog house, brooder house, new 40x60 metal implement shed. Modern 4 bedroom home with bath, oil furnace. For further information or appointment contact ROY DERUS, c/o Loganway, Inc., Realtor, phone Jordan 3-3664, Fort Atkinson, Wis.

$100 PER ACRE buys dairy farm with modern home, six stall milking parlor, $7.20 Cwt. on Savannah, Georgia market. Health reason for selling. Contact: JOHN W. PIERCE, Millen, Georgia, phone 568-M-4.

STROUT SUMMER CATALOG! New, just out! Mailed free! Over 3000 bargains, 36 states, coast-to-coast. World's largest. 58 years service! STROUT REALTY, 7-TF S. Dearborn, Chicago 3, Illinois. 10-3

POSITIONS WANTED

FARM AND HERD MANAGER, 50. Qualified operator any sound livestock enterprise. Years of successful management of two large dairy farms for absentee owner. Ability to plan, purchase, develop and produce efficiently. Prefer East coast area where there are first rate schools. BOX 268, care Hoard's Dairyman, Fort Atkinson, Wis. 9-2

SINGLE MAN, 22, wants work in the north or west as a dairy hand. Sober, life experience. EDWARD VOIRON, Husser, Louisiana.

YOUNG MAN, 20, desires job on diversified family dairy farm. Agricultural student willing to learn. Room and board with small salary. TOM MARSHALL, 5123 W. 122 Street, Hawthorne, California.

HELP WANTED

WANTED: Experienced artificial breeding technicians. Through our frozen semen program and freezers, areas may be developed in any state. References required. Write PIPER BROTHERS FARMS, Watertown, Wisconsin for details. 8-*

HERDSMAN, experienced. Thirty registered Holstein cow herd. Grade A milk, bulk tank, barn cleaner. Modern. STANLEY BAER, Elroy, Wisconsin. 10-*

WANTED: Men to work on large farm. Excellent room and board. Good wages. No experience necessary, just ready and willing to work. Work is building mink pens, painting fences etc. NORTHWOOD FUR FARMS, Cary, Illinois. 10-2

WORKING HERDSMAN for one of America's largest herds of registered Holsteins. Modern house near school and churches furnished. Absolutely no drinking. State wages expected and past experience in first letter. GREEN MEADOW FARMS, Elsie, Michigan.

WANTED: Married man to work on large modern dairy farm. Must be good machine and hand milker. No bad habits. Modern home, good wages. GRANDVU FARM, Wrightstown, Wisconsin.

ASSISTANT TO HERDSMAN for Brown Swiss herd in southeast Iowa. Pit parlor, HIR testing, mostly mechanical feeding. Modern home and extras. Starting salary depends on past experience and references. Give full details in first letter. Write BOX 272, care Hoard's Dairyman, Fort Atkinson, Wis.

HELP WANTED

WANTED: Working herdsman, small herd registered Holsteins. Surge. Modern house. Spokane area. BOX 269, care Hoard's Dairyman, Fort Atkinson, Wis. 9-2

MARRIED MAN on modern dairy farm. Electric milkers; latest farm machinery; modern separate house; all conveniences; references required. OSTVAL FARMS, Goodwin Jacobson, Mgr., Route 2, Box 177, Burlington, Wisconsin. Phone RO 3-3950. 10-2

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PERMANENT POSITION. Experienced married dairyman. Modern dairy. Pipeline and bulk tank. State references, qualifications. ART STAUB, Absarokee, Montana. 10-2

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OLD, ESTABLISHED EASTERN firm opens exclusive Midwestern territories. Sell complete, up to date line mastitis, fly-control and general farm products. Liberal discounts or commissions. Reply to: ROCKLAND CHEMICAL CO., Inc., Box 204, Caldwell, N. J. 9-2

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AGENTS WANTED

SPECIAL—Three 65c tubes $1.00 "Pike's Green Mountain Salve." Infections, drawing-healing "since 1885." BOX 8104, Dept. T, Fort Lauderdale, Florida.

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ROCKS, HAMPSHIRES, AUSTRAWHITES, Leghorns, $6.99; Pullets, $13.99; Heavies, $4.99; Surplus, $1.49. Catalog. BUSH HATCHERY, Clinton, Mo. 9-*

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SEW AND WIN with cotton bags. Glamorous Hollywood vacation for national winners. Awards of $100 in cash prizes and a Necchi portable sewing machine at state and regional fairs. For full details, write: NATIONAL COTTON COUNCIL, Dept. B, Box 9905, Memphis 12, Tenn. 6-spl.

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STOP FEEDING SPARROWS. Make your own trap and catch thousands. Free particulars. ROY VAIL, LaGrange 16, Indiana. 6-6

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I HAVE MOST all breeds choice dairy heifers. Bred and heavy springers. Mountain grown are best. Will deliver. A. L. KELTNER, Greeley, Colorado. 3-*

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE

Special Opportunities

DAIRY CATTLE

ATTENTION DAIRYMEN—Attend Wisconsin's largest dairy auction. Selling all classes dairy cattle every Wednesday. CENTRAL WISCONSIN LIVESTOCK AUCTION, Tomah, Wisconsin. For other information write Jerry Randall, Augusta, Wisconsin. 5-12

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Dairymen—buying on order will save you time and money. Call or write Fort Atkinson, Wisconsin. Telephone JOrdan 3-5905. 12-*

REGISTERED HOLSTEINS, foundation quality young cows, and first calf heifers; vaccinated, accredited. Car or truck load usually available. Phone Myerstown Union 6-4208. S. K. NORMAN, R.D.1, Lebanon, Pennsylvania. 5-8

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BUY YOUR VACCINATED dairy cows and heifers direct from the farmers where quality prevails. GEO. E. SWANSON, Rice Lake, Wisconsin. Phone 944R. 7-16

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CANADIAN DAIRY CATTLE, all breeds, all ages. C. M. FLATT, Route 2, Hamilton, Canada. 9-2

CANADIAN HOLSTEINS direct from the farms. Registered, T.B. and Bang's certified. MIDDLESEX HOLSTEIN BREEDERS ASSOCIATION, Phone Byron 42R181, Hardy Shore, Glanworth, Ontario. 20-*

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. T.B. free. Fieldman available, or will fill orders as directed. Whitewater Dairy Association, DEAN HARNDEN, Whitewater, Wisconsin. Phone Palmyra 358. 1-*

FOR YOUR DAIRY CATTLE needs see LINK BROTHERS, INC., Minong, Wisconsin. We are one of Wisconsin's largest order buyers. Holstein and Guernsey heifers our specialty. Always a large number on hand. 9-*

HOLSTEIN cows and heifers with production, type and size from our foundation Wisconsin herds. Artificial breeding, calfhood vaccinated, Bang's and T.B. tested. PIPER BROS., Watertown, Wisconsin. Telephone 2170. 6-*

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DAIRY CATTLE of all ages, at all times. Delivered anywhere in the United States. Write HUGH PATRIE, Route 1, Cadott, Wis. or phone FUlton 2-2422 Jim Falls, Wis. 10-*

WE ARE NOW TAKING ORDERS for top quality dairy cows and heifers. Holstein, Guernsey and Brown Swiss. Two weeks required to fill orders. Write for prices. DOEDE DAIRY CATTLE SALES, Rosholt, Wisconsin. Phone 2451. 10-spl.

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers, 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 10-*

Sales Announcements

June 4, 1959 Holsteins—Special auction sale. 2 P.M. 200 heifers due July and August. Bancroft sale barn, Bancroft, Wis., Winston Judd, manager. Phone 47F4 Bancroft.

June 6, 1959 Guernseys—Barron Guernsey sale, Barron, Wis. 55 head. For catalog write: Barron County Guernsey Breeders, Poskin, Wis.

June 6, 1959 Brown Swiss—Wisconsin State Sale. 60 head. 11 A.M. D.S.T. at the Sauk County Fairgrounds, Baraboo, Wisconsin. For catalog write Norman E. Magnussen, Sales Sec., Lake Mills, Wis.

Use Your Telephone

TO EARN EXTRA MONEY

Sell HOARD'S DAIRYMAN

to Neighboring Dairy Farmers

WRITE TO

CIRCULATION MANAGER

Fort Atkinson, Wis.

New milk sales effort

Green light given to set-aside, in the amount of 1 cent per hundred, for promotion, research.

by Lee Hamrick

A NEW producer-financed program to advertise and promote fluid milk has been approved under the New York-New Jersey federal order. A series of nine producer meetings, March 17 through April 2, revealed "no substantial opposition" according to Dr. C. J. Blanford, Order 27's market administrator. He, therefore, authorized the program to get underway.

The new program was developed by four major cooperatives in the milkshed. Representatives of the four groups started meeting in late 1957 after the Dairymen's League announced in August of that year it was cancelling its contract with Milk for Health, Inc.

Milk for Health was an organization set up to receive funds deducted from producers' checks at the rate of 1 cent per hundredweight and allocate such funds to the National Dairy Council and the American Dairy Association for use in their national and local milk promotion and education programs.

When the contract expired on May 31, 1958, the league said that its members, with a blanket deduction for Milk for Health, were carrying a disproportionate share of the promotion program and pointed out that, while its members represented 23 per cent of the producers under Order 27, they were paying 46 per cent of the money received by Milk for Health, Inc. At the same time the league emphasized it would support a milk advertising and promotion program which was equitably supported by all dairy farmers in the milkshed.

After a year's negotiation a positive letter program was agreed upon. The program will be administered by a group of milk producers incorporated under the name of Producers Milk Market Development Board. The 11 voting members of the board must be dairy farmers. There are two members from each of the four qualified cooperatives—Dairymen's League Cooperative Association, Eastern Milk Producers Cooperative Association, Metropolitan Cooperative Milk Producers Bargaining Agency, and Mutual Federation of Independent Cooperatives. The remaining three represent unorganized producers in the states of New York, New Jersey, and Pennsylvania, appointed by each of the departments of agriculture in those states.

During the year beginning July 1, one cent per hundredweight will be deducted from all participating dairymen. As in other positive letter programs, the dairymen will receive a letter from their handlers stating that this deduction will be made unless the handler receives written notice to the contrary. It has been estimated that during the first year this program would bring in a minimum of $750,000. At the time the board sought approval of the program from Secretary of Agriculture Ezra Taft Benson, it told the Secretary that it would allocate 75 to 80 per cent of their income to market development, 10 to 20 per cent to research projects, and 5 to 10 per cent to administrative costs.

Some of the market development work will be done by the American Dairy Association and the National Dairy Council. However, the board has not committed itself as to any percentage of income that will go to either of these organizations.

The research projects to be carried on by the board will measure the effectiveness of all current programs aimed at increasing the use of fluid milk and will test new approaches in the fields of marketing, merchandising, advertising, and promotion. The research programs will be guided by three advisory members made up of representatives from each of the Land-Grant colleges in New York, Pennsylvania, and New Jersey.

The money deducted from producers by handlers will be turned over to the Milk Market Development Board which will determine how the money is to be spent. The program will not start until the board has certified that 90 per cent of the producers under Order 27 have received a positive letter from their handler, and the program will stop if 25 per cent of those receiving positive letters drop out of the program for any three consecutive months.

The market administrator has announced it will be necessary to send a new positive letter each year and that he will hold meetings each year to determine producers' sentiment.

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17 daughters 10715 milk 604 fat, and
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TRISTRAM'S 24 classified daughters average 87.08%. Sons of each at moderate prices.

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LARGEST PRODUCERS OF AT MILK
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Write for literature or list of breeders near you

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MONDAY, JUNE 8

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60 HEAD

31 cows — balance bred heifers, yearlings and calves.

5 head by Ex. App. Windrow Prof. Kingfish, also service sire along with Tall Gate Wheel of Fortune on majority of females. For catalog write Conrad J. Zehrer, Sauk Centre, Minn. Robert Sietz, Asst.

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AYRSHIRE bull calves from 500 lb. dams with Windrow & Preferred bloodlines.

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Brown Swiss Have A High Market Value

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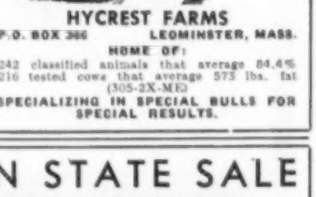

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BARRON, WIS. JUNE 6

55 HEAD

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LOUIS C. ERDMAN

JEFFERSON, WIS., ROUTE 2

Location—3 mi. no. of Fort Atkinson & 3 mi. so. of Jefferson on Co. Trunk K. Follow arrows off Hy. 18 & 12.

May 26, 1959 - 12:30 P. M.

50 HEAD OF HIGRADE & REGISTERED GUERNSEYS

15 Registered cows. 16 Grade cows from Registered cows, no papers. 9 Registered heifers from 5 to 8 mo. of age. 7 Grade heifers from 5 to 8 mo. of age. 3 Registered bulls.

1 yr. old bull a son of Valois Dan of Erdale. 1 bull 8 mo. of age, son of McDonald Farms Mister Young. 1 herd sire born July 6, 1956, sired by McDonald Farms Premier, an all American winner—16 daughters of this great sire.

A member of DHIA for over 40 yrs.

Herd records show B.F. averages as follows.

1950—453 B.F.	23 cows
1951—418 B.F.	27 cows
1952—417 B.F.	26 cows
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1955—424 B.F.	23 cows
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100% vaccinated, T.B. & Bang's clean

Have average of 240,000 lbs. of milk for 5 years. One of the finest herds of Guernseys in So. Wis. Fine quality, good condition, large type, good udders where they belong.

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GRANDVU GUERNSEYS — Choice young bulls and heifers, all ages. Blue Ribbon Type, also, production breeding. From 2 great Proved high index sires. Flying Horse Masters Royal, Greenfield Music Maker. Foundation Club Calves. The right kind at the right price. Write or come to Grandvu Farms, Wrightstown, Wis.

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Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.

FOR SALE

A few choice young cows with good HIR records due in May. Well bred heifers all ages from proven cow families and by proven sires. Several excellent herd sire prospects.

TARBELL GUERNSEY FARMS
SMITHVILLE FLATS, NEW YORK

HOLSTEINS

WE OFFER A

FINE YOUNG BULL

born 6/2/58. This bull is sired by a grandson of Pabst Roamer. The dam is a young cow with a string of good records. She is from a very good cow family. Call CARL MEDSKER at 8R10 Graysville or write to

MEDSKER FARMS Sullivan, Indiana

REGISTERED HOLSTEIN BULLS

Any age from calves to bulls ready for service. Sired by Wis Reward (his sire and dam both Excellent and Gold Medal) and Carnation Flashy Topper, out of our Very Good and Good Plus cows with excellent 2x records. These outstanding bulls are priced very reasonable. Write for complete information, pedigrees, pictures etc., or visit our farms.

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200 to 300 head of quality springing Holstein and Guernsey heifers and young cows, year around. Picked for production, type and clean well formed udders. Herds bought and sold. Satisfied customers, lifetime experience. All cattle are well fed and cared for. Mostly calfhood vaccinated and all are tested. Springing heifers shipped on approval, or cattle may be seen anytime. Two miles northwest of

Irvington, Nebraska
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FROZEN SEMEN FOR SALE

5 ampoules $50 from Clarkdale Gloria Transmitter (Ex-GM), leading honor list sire in the U.S. He is a 4%, 1104 lb. and 27,000 lb. bull. His 37 daughters average 15,195, 3.81% and 579 fat, 2x, 305 days.

ORDER NOW WHILE IT IS STILL AVAILABLE.

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DELBERT H. KINGSTON & ASSOCIATES

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11th WISCONSIN STATE SALE

60 BROWN SWISS SELL
11 A. M. D.S.T. June 6, 1959
AT THE SAUK COUNTY FAIR GROUNDS
BARABOO, WISCONSIN

Consignments from top Wisconsin breeders. Foundation cattle all ages with production records from which to choose. 5 Choice Young Bulls Sell.

FOR CATALOG WRITE

Norman E. Magnussen, Sales Sec. Lake Mills, Wis.

Gluek Farms Guernsey Dispersal

1:00 p. m., Thursday, June 4, 1959

50 HEAD

28 daughters of Hominy Hill Colonel, 10 daughters of Boulder Bridge Percules, 18 of the cows to be sold are milking, 16 are bred heifers, 13 are open heifers. Also 3 bulls of good breeding and individuality. Here is your chance to purchase foundation registered Guernseys. This herd contains many famous bloodlines because carefully selected sires have been used for years.

Sale will be held at Gluek Farms, 2691 North Snelling Avenue, St. Paul, Minnesota. Farm is located 2 miles north of Minnesota State Fair Grounds on Highway 51. Sale starts promptly at 1:00 p.m.

BORN OCTOBER 21, 1956

This month we offer the Wis Spotlight son pictured above. He is out of a high record Carnation Stylemaster daughter.

For price and pedigree write:

STOFFELL'S MILK FARM

Route 12 Knoxville, Tennessee

WISCONSIN HOLSTEINS for the SOUTHERN STATES

Quality Holstein heifers and cows grade and registered. Mostly Pabst bloodlines; high percentage artificially sired. Well acclimated cattle on hand, orders filled as desired, pool or full loads by insured hauler—officially calfhood vaccinates if desired. TB and Bang's tested. Ag. grad., 10 yrs. Co. Agt., over 20 yrs. dairy cattle experience. **P. R. ELAM. Phone 3451 Marshall, N.C., Night Phone 2381 Mars Hill, North Carolina.**

REGISTERED and HIGH GRADE HOLSTEIN COWS and heifers. Largest selection of choice quality dairy cattle in Michigan. Our prices are very reasonable and we deliver anywhere. Every cow guaranteed exactly as represented. 37 years in the same location. See us before buying dairy cattle of any kind.

Merle H. Green & Sons
Elsie, Michigan

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Buy direct from farms where top production dairy cattle are raised. Over 300 to select from. Located in "Heart of Indiana's Dairyland," Kosciusko County. Experienced truckers available. Also Shetland ponies.

LAKESIDE DAIRY FARMS
Silver Lake, Indiana Telephone 3801-3804

OUR NATIONAL CONVENTION SALE CONSIGNMENT
OMAHA, NEBRASKA
June 4, 1959

CARNATION MADCAP CROWN PRINCE
Born: December 23, 1958

If ever a calf was worthy of the title "Crown Prince," he is the one. He is a son of Butter Boy from a great breeding. "Excellent" daughter of Black Magic from the Madcap family—the family that continues to write history generation after generation. Don't fail to look him over at Omaha.

ALSO SELLING

CARNATION LEONE HEILO MERCEDES
Born: June 20, 1957

She is a big, stylish heifer, with beautiful udder promise. Her sire, Carnation Revelation Emblem, is out of Praxes Leonora Wayne and her dam is a "Very Good" daughter of Butter Boy. She, therefore, combines the blood of Leonora and Butter Girl.

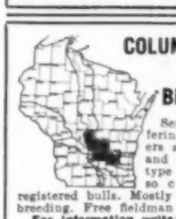
She is due Sept. 15, 1959 to "Excellent" Honorable Mention All-American Carnation Royal Lancer—a Butter Boy son.

CARNATION SALLY TILDA FAVORITE
Born: August 2, 1956

Here is a beautiful Butter Boy daughter from a "Very Good" Black Magic daughter. Next dam is "Excellent" and the dam of "Excellent" Gold Medal Carnation Standout. This has long been one of our top cow families.

Write for pedigree and complete information.

Address:
CARNATION MILK FARMS
Dept. T 155
Carnation, Washington



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Serving five counties. Offering select quality heifers and young cows, grade and registered, bred for type and production. Also choice, serviceable, registered bulls. Mostly Burke and Carnation breeding. Free fieldman service.

For information write: W. K. WRIGHT, Rt. 1, Columbus, Wis. Ph. Fall River 26F21

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Holstein - Guernsey - Brown Swiss

COWS, HEIFERS, ALL AGES
Registered and Non-registered

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Rt. 1, Richland Center, Wis.
Midway 7-3200 or Midway 7-2515

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Serving nine counties, in the heart of Wisconsin's dairy land. Foundation registered and top quality grades available, bred for type and production. Over 300 registered breeders in area. All popular Holstein bloodlines. 5 large artificial breeding rings serving the area. Come and make your own selections, or will buy on order at your direction. Fieldman service. Write, wire or phone G. J. STANCHFIELD, Phone WA 25264, 30 Champion Avenue, Fond du Lac, Wisconsin.

NORTHERN DAIRY CATTLE DIRECT FROM FARMER BREEDERS

T.B. & Bang's accredited county. Fieldmen sales & service, or orders filled. For information write, call, or wire **Barron Co. Coop. Dairy Cattle Sales Ass'n,** Barron, Wis. Glen L. Krahenbuhl, Mgr. **Ph: Lennox 7-3202.**

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CONSIGNMENT SALE EVERY TUESDAY
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300 HEAD of DAIRY COWS

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"The Excellent and Gold Medal animals speak for themselves and with intensified linebreeding their offspring run true to form.

A number of choice bulls from which to select a herd sire always available.

"For Information and sales lists, write to

FRED M. WHITEMARSH, Farm Supervisor
STATE DEPARTMENT OF PUBLIC WELFARE
State Capitol, Madison, Wisconsin."

SPECIAL AUCTION SALE
Thursday, June 4, 2 P. M.

200 Holstein heifers due July and Aug. At the Bancroft sale barn, Bancroft, Wis. Sale every Thursday.

(WINSTON JUDD, mgr.)
PHONE 47F4 BANCROFT.

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REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows.

Free fieldman services. Write-wire-phone for prices:
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Office in Black Hawk Motel, Fort Atkinson, Wis.
Phone JOrdan 3-2329
Res. Phone LYnwood 3-2351 at Sullivan, Wis.

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Let us help you select your foundation Holsteins and Guernseys, both purebred and grade from herds of high productivity in the finest dairy farm area in Wisconsin. Orders also filled at your direction.

FRANCIS DARCEY and SONS
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Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on D.H.I.A. test and more than 30,000 bred artificially from some of the top proven bulls. Also a few serviceable bulls from high record dams. Fieldman sales and service. For information write: **Frank E. Cairns, Fieldman, City County Bldg. Madison, 9, Wisconsin.**

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DANE COUNTY HOLSTEIN BREEDERS CO-OP ASSOC. MADISON, WIS.

TOP HOLSTEINS — TOP SERVICE

Select well grown cattle of superior breeding from this outstanding dairy area, where customers return year after year for more. **You, too,** should buy in Richland County. The Richland County Holstein-Friesian Assn., **Frank Brewer,** Fieldman. Phone Midway 7-2460, **Richland Center, Wis.**

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Select foundation Holstein cows and heifers with production, type, and size from our Foundation Wisconsin herds. Artificial Breeding. Calfhood vaccinated, Bang's and T.B. tested. Fieldman service or will fill orders at your direction.

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If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

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We had many more inquiries for PAGANOK PAYMASTER PLUS than we could supply.

We do have four younger brothers, all by "Paymaster," the All-Missouri son of our National Record "Betty" with 1284 lbs. Fat, 4.4% as a four year old. One is from a State Record cow. Another good calf is from an 877 lb. Fat, 4.6% sister of "Betty."

For further information, write:

SCOTT MEYER & SON **HANNIBAL, MISSOURI**

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from top purebred and high grade herds in ten counties—many artificially bred. We service over 700 of the better herds in Wisconsin. At the present time, we have over 100 purebred, registered cows and heifers due to freshen this spring or fall; also, a great many high grades. We specialize in truckloads or carloads.

TELL US YOUR WANTS AND WE WILL QUOTE PRICES.

Offering sons of Woodbourne Inka Reflector. His dam (pictured) is the breed's only "Ex" "All-American" "Gold Medal" dam! She, her full sister, 15/16 sister, & daughter are all "Ex" with "Ex" mammary systems. In 7 yrs. her 7 2x records ave. 19604 m. 3.8%, 747 fat. Reflector's sire is "Ex" and sired the "All-American" gets for 1953, 54, 55 & 57. We have bull calves 2 to 9 mos. at prices you can afford. Their dams are good young cows—several out of Budd Farm Maestro whose dam made 33343 m. 4.1%, 1362 fat. We invite your inquiry.

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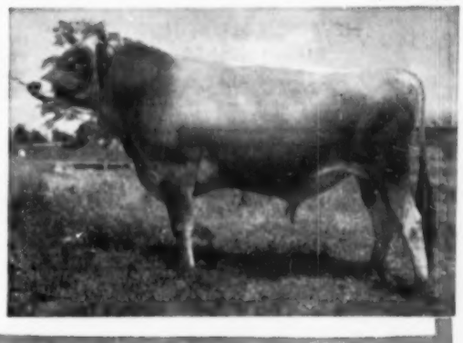
(Snapshot is a 2-year-old) Now almost 7 years old, his daughters are doing VERY WELL at the pail, in the show-ring and at sales. 6 AB daughters, in 4 herds, ave: 9288 - 5.4% - 508, 305d - 2x - ME + 506 Milk + .16% + 44 Fat over dams. He sired winners at Parish Shows and Fairs in Mo., Ia., Ill., Wisc., Ind., Ohio, Pa., Vt., and Mass. In 1958, 6 classified daughters ave: 85.5



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Curtiss has 4 Excellent and 8 Very Good bulls from the greatest families of the Jersey breed. We have 11 proved bulls that are siring *The Right Kind of Daughters* both in production and type.

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NEW FREE-FLOATING AUGER FEEDER

No bearings on this auger to wear or service. Means extra-smooth feed-flow . . . no hang-up, no "hammering." And a low hp motor is plenty.

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Conventional bearing-type auger "bangs" and plugs. Costs more to maintain. Needs a big-powered motor.

This new Jamesway *Auger Feeder* is the slickest-working, simplest, most dependable feeder yet. There are no bearings, no hangers in the bunk . . . nothing to slow up feed. Builds a bunkful in no time . . . and cattle can't "nose" out feed.

Add the *Volumatic Silo Unloader* and you have full push-button feeding — high-speed, labor-free. Volumatic's exclusive Power Circle is a positive ring gear drive. Exclusive 3-point suspension assures smooth level cutting. And Jamesway's safety design protects the mechanism . . . means start-it-and-forget-it dependability. See your Jamesway dealer about the new Auger Feeder and Volumatic Silo Unloader. And ask about the easy ownership plan. For free catalog write James Mfg. Co., Dept. HD-59C, c/o your nearest division office.

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VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

Eye troubles

During the pasture season there is a greater incidence of eye troubles in animals than when they are confined in barns during the winter.

Eye troubles cause considerable stress to the animal. A cow's milk production may drop as much as 10 pounds. It is good for the animal, and good for your pocketbook, to provide relief for the animal as soon as possible.

Neglect may lead to spread of the infection to other animals in the herd, or even loss of an eye in an individual.

Inflammation or injuries to the eye may be caused by any number of things.

Pinkeye is a highly infectious eye disease. The cause is unknown, but a variety of bacteria have been isolated. Regardless of the cause, the condition is very contagious among cattle and sheep.

Some types of pinkeye are associated with a vitamin A deficiency. This type is found mostly in feed lot cattle or herds which have not had access to pasture or legumes for a long period of time.

Foreign bodies . . .

Such foreign bodies as chaff (short stems or leaves from corn or grass silage); particles of dust, sand, and so forth often cause severe inflammations. Malignant tumors or cancerous growths in their beginning stages often resemble a simple inflammation or pinkeye. These tumors may involve the eyeball or the so-called third eyelid. Carcinomas (malignant tumors) occur mostly in Herefords and Holsteins.

Successful treatment of an infected eye must be preceded by proper diagnosis. A piece of chaff or a barley or wheat awn trapped beneath an eyelid, or a carcinoma in its beginning stage can be mistaken for pinkeye.

The eye may be inflamed, swollen, and pus may be present. It is always very painful. Your veterinarian is best qualified to properly diagnose the condition, relieve the pain, and treat the eye. If a veterinarian is not available, try to determine the cause.

If a foreign object is present, try to remove it as carefully as possible; then irrigate the eye with a mild solution of boric acid. The application of a little mineral or castor oil is soothing and sometimes helpful in removing small particles of dust or chaff. Before healing can begin, the cause must first be removed.

Special eye powders, emulsions, ointments, and solutions often are helpful. Usually an anesthetic for the relief of pain is incorporated with the treatment. This relaxes the tissue and induces more rapid recovery.

When the cause has been determined to be a transmissible infection, isolation of infected animals in dark, screened stalls to reduce the possible spread of infection by flies is desirable.

Whenever possible, avoid driving cattle on dusty roads or fields, particularly on windy days. If a vitamin A deficiency exists, generous amounts of green roughages should be supplied or the feed supplemented with a vitamin A concentrate.

CAKED UDDER

We have a dairy cow that has been fresh about three months. As soon as she is put in a stanchion barn, her udder becomes caked and it is difficult to keep a milker on her because she has small teats.

Our veterinarian recommended feeding extra protein, about three pounds per day, but it doesn't seem to help.

Falmouth, Mich. J. B.

I'm wondering if most of the swelling or thickening is in the rear quarters and up on the back of the udder? If it is, then I believe the condition is what we call chronic edema of the udder. There is little that can be done for this condition.

If it is a case of acute edema (swelling), placing chopped ice (held in position with an udder support) on the affected quarters or alternate hot and cold bathing may be effective. If this does no good, we suggest you consult your veterinarian.

MAY BE ENTEROTOXEMIA

I have lost three veal calves in the past few months. They were from 3 to 5 weeks old and weighed from 150 to 200 pounds.

I fed them sweet milk and they were in good flesh. In a matter of a few hours they would seem to go wild, froth at the mouth, bellow, and have difficulty in breathing. I got some tablets from the veterinarian but in a short time the calves were dead.

Wayland, Mich. G. T.

Any one of a number of causes could be responsible for the death of your calves. Some of the more common are metallic poisoning, acute general or intestinal infections, circulatory (heart) failure, internal bleeding, and so forth. Most of all I would suspect a hemorrhagic enteritis or enterotoxemia.

Enterotoxemia usually occurs in calves that are getting a great deal of milk or are well-fed, perhaps too well-fed. Vaccines are available for the control of this condition. In severe outbreaks, it is sometimes necessary to administer toxides to pregnant cows.

We suggest you have your veterinarian examine the calves, so that a diagnosis and proper treatment may be administered.

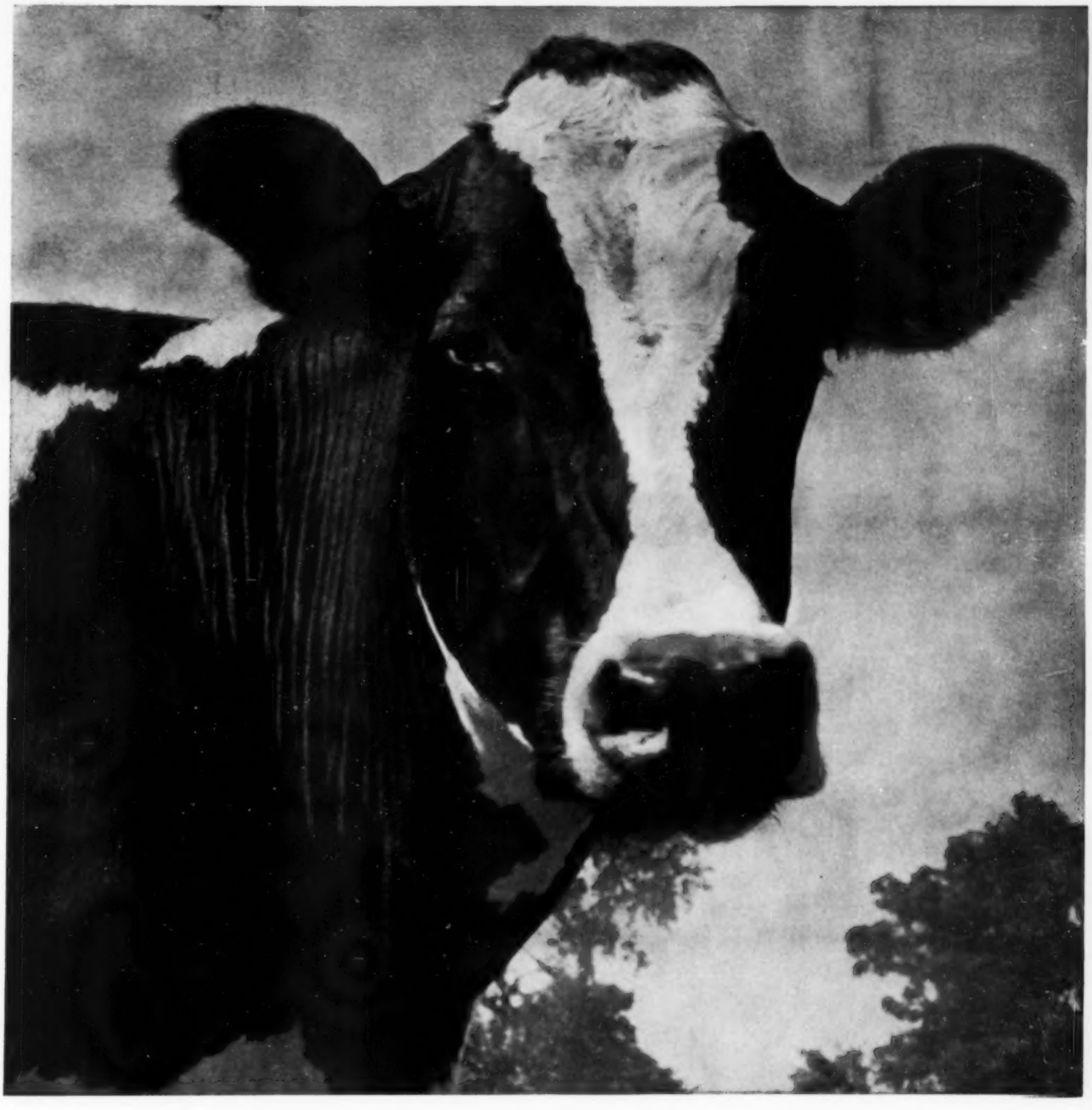
If the calves are receiving too much milk, reduce the amount and substitute good-quality hay and a little grain.

WILL FREEMARTIN BREED?

We have twin calves, male and female. I have heard that the female will not reproduce.

Bangs, Texas J. R. S.

About 1 out of 10 or 12 females born twin with males will reproduce. I suggest you have your veterinarian check the female to determine whether she is normal. If he is not acquainted with this test, have him write me.



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Disease affects a cow's productive capacity, often keeps her out of the milking line.

That's why so many dairy farmers are now using feeds containing AUREOMYCIN®. This broad-spectrum antibiotic helps provide the good health cows need to reach their maximum milking potential.

AUREOMYCIN, in feeds, effectively aids in the control of three costly diseases: Respiratory disease (rhinotracheitis-shipping fever complex), foot rot and bacterial diarrhea.

CALVES, too, need AUREOMYCIN! Milk replacers and starter feeds containing AUREOMYCIN get calves off to a good start, reduce scouring, promote up to 35% faster growth.

Ask your feed manufacturer or your feed dealer for dairy feeds containing AUREOMYCIN. Keep herds in better health! American Cyanamid Company, Agricultural Division, New York 20, New York.

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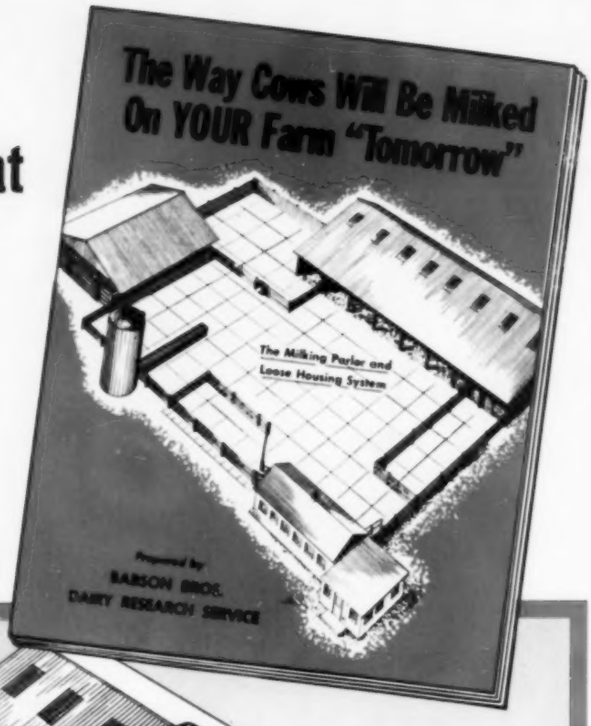
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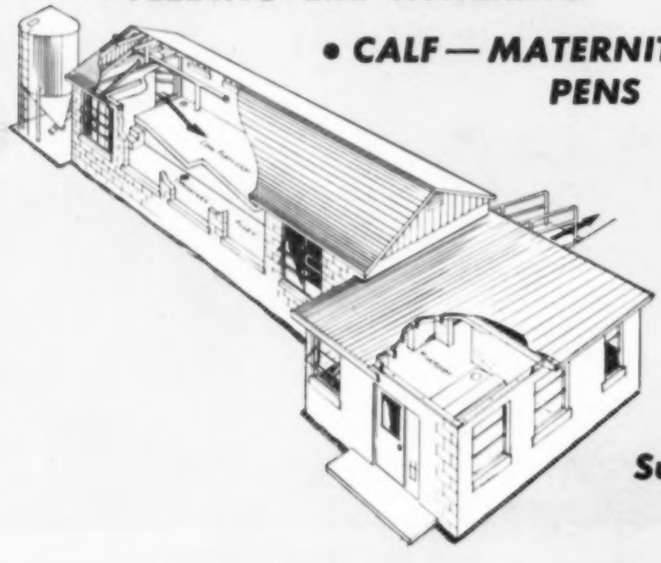

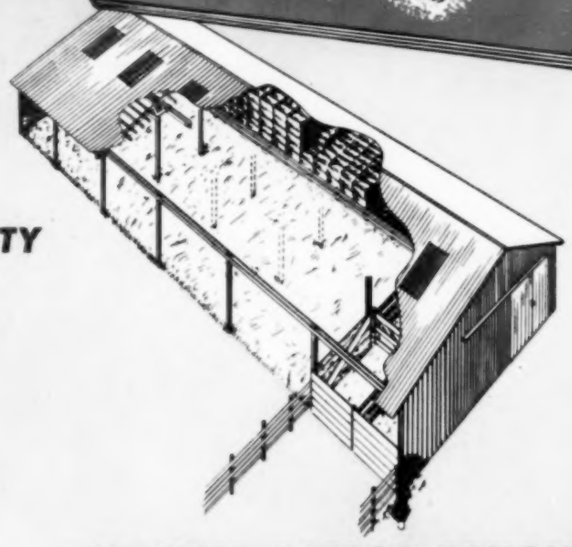

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Right now you can probably find a few spare evenings to dig into the subject of parlor milking and loose housing.

Up to now there is just not another book that tells you so many facts and explains them with so many good pictures in so few pages.

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